Facility Management Guidelines to Managing Risk

FACILITY MANAGEMENT
ASSOCIATION OF
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INTRODUCTION & ACKNOWLEDGEMENTS

In recent years the application of risk management techniques and approaches in all industries has been increasingly recognised as a key element of an effective management and corporate governance framework. This trend was recognised through the development of the Australia/New Zealand Standard for Risk Management AS/NZ 4360.

As the nation's leading body in facility management, the Facility Management Association of Australia (FMA) decided to commission a research study into the use of risk management concepts and practices within facility management. This publication has been developed as a result of that study and provides practical and tailored guidance on the application of risk management at all levels within facility management.

Effective risk management planning and practice is an essential component of the practice of Facility Management. Delivering on strategies that enable the organisation to realise the opportunities in their activities while appropriately managing risk is the central idea that informs the Facility Management Guidelines for Managing Risk. The FMA recognises the importance of managing risk to the delivery of best practice facility management by establishing it as one of the six core FMA Competency Standards.

Organisations increasingly find themselves in uncertain times due to the impact of technology, globalisation and an ever increasing pace of the product lifecycle. These drivers represent enormous opportunities, however the consequences of the failure to adapt are also significant. In addition, the changed security situation has created a whole new dimension that needs to be considered and addressed. All these factors have an impact on the risk profile for the organisation.

The role of the Facility Manager is to ensure that the workplace supports the achievement of the objectives of the organisation. The Facility Management Guidelines for Managing Risk offers a resource that will assist the professional to design and deliver effective risk management in their workplaces.

This guide is based upon AS/NZS 4360 and has been designed as the industry guide for managing risk within facility management. This document provides risk management concepts, models and processes which can be applied at any level of organisations no matter how large or small. This document aspires to teach readers the philosophy and principles required to effectively manage risk in their area of responsibility. It is not meant to provide a prescriptive dossier of checklists and procedures but rather provides information on what an organisation should do to embed risk management. It is a guide on "how" rather than "what" of effective risk management for facility managers.

Risk management has evolved from being more than just a checklist of hazards that organisations need to avoid. Managing risk is as much about capitalising on opportunities, and should be part of an organisation's strategic and operational planning and decision making. It requires a structured framework that will allow the management of risk to become second nature to all members of an organisation.

Facility management is now firmly established as a professional discipline in Australia attracting senior managers with a wide range of qualifications and experience from other industries. The facility management industry is maturing from a mainly operational activity to a more comprehensive strategic approach which influences organisational planning and performance.

This development of the FM discipline is resulting in a new way of thinking about the management of facilities that has much in common with the emerging discipline of risk management. Some examples of this shift in thinking are listed below:

1. A focus on managing risks rather than crises

2. Being proactive instead of reactive

3. Cooperative rather than adversarial relationships in the supply chain

4. A consultative rather than inward looking approach

5. Less analysis and more identification at all levels of the organisation

6. Recognising that managing (risk etc.) is a core rather than peripheral activity

7. Being consistent rather than unsystematic

8. Seeking simplicity instead of complexity

9. Using qualitative as well as quantitative measures of performance

10. Relying on people as well as technology for information

11. Recognising opportunities as well as hazards.

This guide will assist facility managers to apply the current standards of practice in risk management to all their professional obligations, in a climate of increasing corporate responsibility, to comply with statutory regulation and minimise liability.

The Facility Management Accreditation System defines three levels of facility management competency ranging from practice (mainly operational) to manage and lead (mainly strategic). The risk management role and the relevant parts of this guide at each level are listed in the table below:

TABLE 1   RISK MANAGEMENT REFERENCES

FMAS LEVEL	GROUP	ROLE IN RISK MANAGEMENT	RELATED PARTS IN THIS GUIDE
Lead	chief executive	• ensure risk management framework is implemented and adopted • endorse risk management vision • endorse the current and planning approach to managing the significant and critical risk areas.	all parts
	senior management group	• review of corporate-wide and business unit risk profiles • review and assess current and planning approach to managing significant and critical risk areas • review and monitor completion of risk profiles and action plans • ensure risk management framework is implemented in individual business units.	all parts
	internal audit committee	• independently oversee risk management framework • review and approve risk profiles and action plans (collectively and for all business units) • independently monitor the implementation of a risk management program against an endorsed implementation strategy or plan.	all parts
Manage	facility manager	• continually validate business objectives, identify and assess risk to facility management and manage those risks • establish and monitor risk action plans.	1–5
	risk manager	• coordinate the implementation of the risk management framework, risk profiles and action plans • facilitate, challenge and drive risk management • report to senior management group and/or audit committee.	1–5
Practice	contractor, subcontractor or supplier	• work within the risk management framework of the organisation you are contracting to • identify, assess and manage risks within area of responsibility • develop risk management plan or profile for contract.	1–5
	individual personnel	• recognise, communicate and respond to new, changing or anticipated risks • contribute to the process of developing risk profiles for relevant business unit.	1–3

Adapted from *Enterprise Wide Risk Management*, CPA Australia, Melbourne, 2002.

The guidelines have been developed jointly by Global Risk Alliance and the FMA. The FMA is grateful to Stephen Betros and Chris Marrable who facilitated the development of the guidelines.

Global Risk Alliance (GRA) is an Australian based company that specialises in the provision of risk management services. These services include establishing risk management programs, training, risk planning and assessments, and executive coaching. Established in 1997 GRA has staff in Sydney, Canberra and Newcastle and has representative offices in the United Kingdom, Taiwan and the Philippines. Further information can be found at www.globalriskalliance.com

The Global Risk Alliance team included:

Authors:

Kimberley Turner is the Chief Executive Officer of Global Risk Alliance. Kimberley has played a significant role in implementation of risk management programs for a number of large organisations and was a risk advisor to the Defence counter-terrorism team for the Sydney Olympic Games. Kimberley sits on the Australian Standards Committee for Corporate Governance, provides risk coaching to Senior Executives and is regularly invited to brief Board of Directors, Department Ministers and Company Executives. Kimberley is the youngest person to be recognised as a leading authority in the field of risk management and was awarded NSW Telstra Young Business Woman of the Year in 2001, Young Transport Professional of the Year in 2002 and Young Achiever of the Year in 2003.

Noeleen Clarke is a Senior Risk Advisor with Global Risk Alliance and is a Certified Practicing Risk Manager (CPRM). Noeleen's primary role is in designing and developing risk management systems. She has been Director of Research and Development on a number of high profile projects in the Department of Defence and in other areas of the pubic and private sector. In addition to this, Noeleen has coordinated investigations for Boards of Inquiries, has extensive experience in facilitating risk workshops and regularly delivers risk management seminars and training. Noeleen has co-authored a number of publications and manuals.

The Steering Committee provided strong guidance on the facility management aspects of the research and ensured that we all kept within the timelines. The FMA appreciates their commitment and assistance. The members of the Steering Committee were:

Chris Marrable

Ross Coyle

Dr David Ness

John Pick

Kymble Reid

Stephen Betros

Edited by Sally Woollett
Designed by Artwords

Risk Management Concepts

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SUMMARY

This part of the guide briefly overviews the facility management industry and its relevance to risk management. Key concepts such as risk and the three key types of risk are defined. Risk management is explained in terms of minimising loss, maximising opportunity and preparing for uncertainty. The influence of organisational culture in risk management is introduced.

THE FACILITY MANAGEMENT INDUSTRY

Over $750 billion is invested in the non-residential built environment in Australia. Another $13 billion is invested in new construction each year. Virtually every Australian works in the built environment and it is the 'place' where most of the nation's income is generated. The effectiveness of our built assets is fundamental to the productivity and competitiveness of the economy and our impact on the environment.

The facility management industry is an emerging and important industry in building, construction, service delivery and the property services sector. The facility management industry provides a critical range of management, products and services to support the working environments of Australian industry, government and community sectors. Facility management is principally involved in the process of managing and operating facilities after their construction, while the principal players in the industry, facility management professionals, typically plan and manage the whole of a facility's life cycle, embracing all aspects of facility creation, operation and disposal.

The facility management industry and related economic activity accounted for four percent of Australia's gross domestic product (approximately $25 billion in 1999). About 400,000 people were employed indirectly in the facility management industry. (Source: Facility Management in Australia – A Market Overview, 1999, Arthur Andersen).

RELEVANCE OF RISK IN FACILITY MANAGEMENT

The facility management industry delivers a range of services and products through the spectrum of the facility life cycle, all of which carry varying degrees of risk. Identifying risks and being prepared to manage them will minimise any negative impact they may have. Risk management is recognised as good business sense and a way to demonstrate good governance. Risks can be managed informally or in a more formal and structured way. Either way, it is desirable to embed risk management thinking and practice into business planning processes so it becomes part of the way business is done and facilities are managed.

Current global events have increased the focus on managing uncertainty. Given the nature of facility management and the significance of infrastructure, assets, facilities and service supply, the responsibility for most of this planning and recovery or response rests with those who manage facilities.

DEFINING RISK AND RISK MANAGEMENT

Risk is an inherent part of life. The operation of any organisation involves risk. Organisations can be destroyed by letting risk get out of hand, or be rendered powerless by not taking risks. Risk involves costs and opportunities; to strike the right balance, organisations must effectively manage risk.

> **Risk is the chance of something happening that will impact upon objectives.**
>
> **It is measured by combining the magnitude of the potential consequence with the likelihood of the occurrence.***

* AS/NZS 4360:1999 para 1.3.15

Over the last decade risk management has evolved into a structured and well-defined management discipline. Originally confined to traditionally high-risk industries, such as the petrochemical, nuclear and mining industries, risk management has broadened its base and is now applied in almost every industry around the world.

This diversification has cultivated a new and innovative way of thinking about risk. This new way of thinking encourages risk management to be more than loss mitigation or reduction. It is now a proactive and structured method for identifying, measuring and harnessing opportunity. Risk management involves:

- minimising those things that may negatively impact upon an organisation

- identifying and harnessing those things that will help to achieve the organisation's objectives and goals.

Linking risk with the objectives of an organisation is the basis of risk management and relates it to the core business.

PREPARING FOR UNCERTAINTY

Although the concepts of risk management are maturing to include maximisation of opportunity as well as minimising loss, another dimension of risk has emerged in recent years: uncertainty. The notion of managing uncertainty is becoming more a reality than a far-fetched thought. The attitude 'it won't happen to me' has rapidly changed in the last five years to 'that could so easily have been me'. In risk management, it is often thought what is not measured is not managed. When considering uncertainty and the impact the unknown may have on an organisation, measuring uncertainly is translated into the identification of the worst-case scenario.

Uncertainty by its very nature is difficult to predict and quantify. Proactive thinking and a planned response have at least the same importance in planning for uncertainty as they do in cases of more tangible risks.

Disaster or unexpected outcomes can occur at any time. In the case of uncertainty-based risk, the direct cause is generally unpredictable and beyond our control, so how can we manage it? In these circumstances, focus can be directed toward planning to minimise business disruption and ensuring that plans are in place to respond to the crisis if it occurs.

With recent global events such as Y2K, September 11, global terrorism and unpredictable market changes, the focus on being prepared for the worst case has increased considerably.

BENEFITS OF RISK MANAGEMENT

There is a variety of benefits that organisations can draw from when adopting a structured approach to managing risk. Risk management:

- improves communication in organisations

- improves management reporting

- improves stakeholder relationships

- develops a learning culture

- increases the uptake of opportunities

- improves coordination between partner entities

- encourages more robust corporate planning

- reduces budget blowouts

- reduces compliance costs

- improves resource allocation and use

- achieves organisation's objectives

- improves accountability

- increases stakeholder confidence

- reduces litigation potential

- improves understanding of the risks to business

- achieves a more structured approach to comparing and accepting risk.

RISK MANAGEMENT AND ORGANISATIONAL CULTURE

Given the breadth and multiplicity of areas incorporated in facility management, the range of risks needs to be adequately identified and managed. Contemporary risk management requires a framework of process and support to allow risk information to move quickly and efficiently around an organisation.

How is risk managed? It is done by tapping into the processes and structures within the company that enable people to make the most of the situation. These structures and applications of process are supported by an organisational culture that encourages individuals to 'do the best thing' for the organisation. The link between adopting a structured approach to managing risk and the organisational culture is explored later in this part of the guide. Part 3 of this guide elaborates on the risk management process, which is central to risk management.

ASSOCIATED TERMS AND DEFINITIONS

Risk management includes a range of definitions that are used when communicating risk information or in explaining how the risk management process has been used. Key terms recognised in the definition are risk, risk management, risk assessment, hazard, likelihood, probability and consequence. This guide is compatible with AS/NZS 4360 Risk Management. Part 8 of this guide is a glossary of terms for risk management within facility management.

Additional key terms are used within this guide to assist in classifying risk or the system that manages the risk. These are outlined in Part 2 of this guide.

Risk means different things to different people depending on their background, their experience and their understanding of risk. Risk management evolved predominantly from the engineering, safety, finance and insurance disciplines. Each background supports a slightly different school of thought on risk. Some support the concept of 'zero tolerance'; others adopt the approach of 'reduction of risk as far as is reasonably practical'. It is important to keep this in mind when communicating risk information, to ensure that the appropriate message is being communicated.

The terminology and key concepts of AS/NZS 4360 are used throughout this guide to assist facility managers to align their risk management practices with the current international standards and to ensure that these concepts are understood and communicated within their organisation.

TYPES OF RISK

In principle, the three types of risk (Figure 1) are:

- opportunity-based risk

- uncertainty-based risk

- hazard-based risk.

Each type of risk has distinct characteristics that require a different management approach or analysis technique. An understanding of the three types of risk will enable facility managers at all levels to select the most appropriate and effective management approach for the type of risk.

FIGURE 1   THE THREE TYPES OF RISK

Uncertainty-based risk

Opportunity-based risk

Hazard-based risk

Opportunity-based Risk

Opportunity risk is the potential gain or the positive impact to objectives.

Opportunity-based risk:

- can be tangible and or intangible

- is often quantified in dollar terms

- can have a positive or negative outcome.

Examples of opportunity-based risk are:

- business expansion and/or property acquisition

- change in business location

- sub-letting.

CASE STUDY: A RISK-BASED APPROACH

The Department of Defence has adopted a risk-based approach for the evaluation of garrison support tender returns.

Areas of garrison support subject to tender included:

- hospitality and catering

- accommodation management

- grounds maintenance services

- pest and vermin control services.

Opportunities identified included:

- increased economy and efficiency of operation

- streamlining of current services

- consolidation of primary contractors

- redirection of primary effort to core business, i.e. defence.

Uncertainty-based Risk

Uncertainty-based risk is the risk associated with unknown and unexpected events. These events are usually catastrophic in nature and include accidents and 'acts of God'.

Uncertainty-based risks:

- are unknown or extremely difficult to quantify

- are catastrophic or disastrous in nature

- can be very costly

- are associated with a negative outcome

- are outside the manager's sphere of control or influence.

Examples of uncertainty-based risk are:

- building damage by flash flooding

- arson

- acts of sabotage or terrorism to a major facility.

CASE STUDY: AN UNCERTAINTY-BASED APPROACH

An international telecommunications company has a major storage warehouse in Cairns that services the Asia-Pacific region. This facility was under threat by a cyclone and all stock needed to be relocated to a suitable storage facility within 24 to 48 hours.

In attempting to relocate the stock and secure a suitable storage facility outside the impact zone of the cyclone the facility manager discovered that other companies had secured all available transport and storage facilities.

As a result the company sustained major losses in damaged stock, with a requirement to have stock redirected from the European division to service clients in the Pacific region.

Subsequently the company developed a contingency plan, which identified an appropriate course of action in the event of future cyclones.

Hazard-based Risk

Hazard-based risk is the risk associated with a source of potential harm or a situation with the potential to cause harm. Hazards are generally grouped into the following categories:

- Physical hazards: These include noise, radiation, heat, cold, vibration and pressure

- Chemical hazards: Some of the consequences of chemical hazards are explosions, flammability, corrosion, poisoning, toxicity and carcinogenicity

- Biological hazards: These include viruses, bacteria, fungi and other organisms

- Ergonomic hazards: Hazards associated with poor workspace design, layout or activity and equipment usage

- Psychological hazards: Sources of psychological stress that can result in physical or psychological harm.

Hazard-based risks:

- are usually known

- are readily quantifiable

- are tangible

- impact predominantly on safety.

Examples of hazard-based risks are:

- Legionella outbreaks from air conditioning

- management and usage of hazardous chemicals

- confined space entries

- manual handling.

CASE STUDY: A HAZARD-BASED APPROACH

A real-estate developer submitted a development application to council detailing the specifications for a new housing estate for approval. The estate will include the construction of 210 residential dwellings and an artificial lake.

A condition of approval by the council is the submission of a comprehensive risk assessment, detailing the hazards and risks to the community of the artificial lake throughout its life cycle.

The main areas of focus of the risk assessment were:

- public safety during construction

- water quality

- disease control

- pest control

- access and the safety of children

- maintenance.

ESTABLISHING AN ORGANISATIONAL CULTURE TO MANAGE RISK

There are two aspects of risk management: the risks themselves, and the organisational framework or program that enables the people within the organisation to manage risk in a structured and ordered manner (Figure 2). Both aspects need to be considered by any organisation establishing a risk management program. By adopting a structured approach to how risk is managed and communicated, improvements in organisational performance can be achieved, and a culture of sensible risk-taking will emerge.

FIGURE 2   THE TWO ASPECTS OF RISK MANAGEMENT

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                    ┌─────────────────────┐
                    │   Managing Risk     │
                    └─────────────────────┘
                              │
              ┌───────────────┴───────────────┐
┌──────────────────────────────┐    ┌──────────────────────────────┐
│ Organisational Risk Management│◄--►│   Risks to the Organisation  │
│      Framework & Program      │    │                              │
└──────────────────────────────┘    └──────────────────────────────┘
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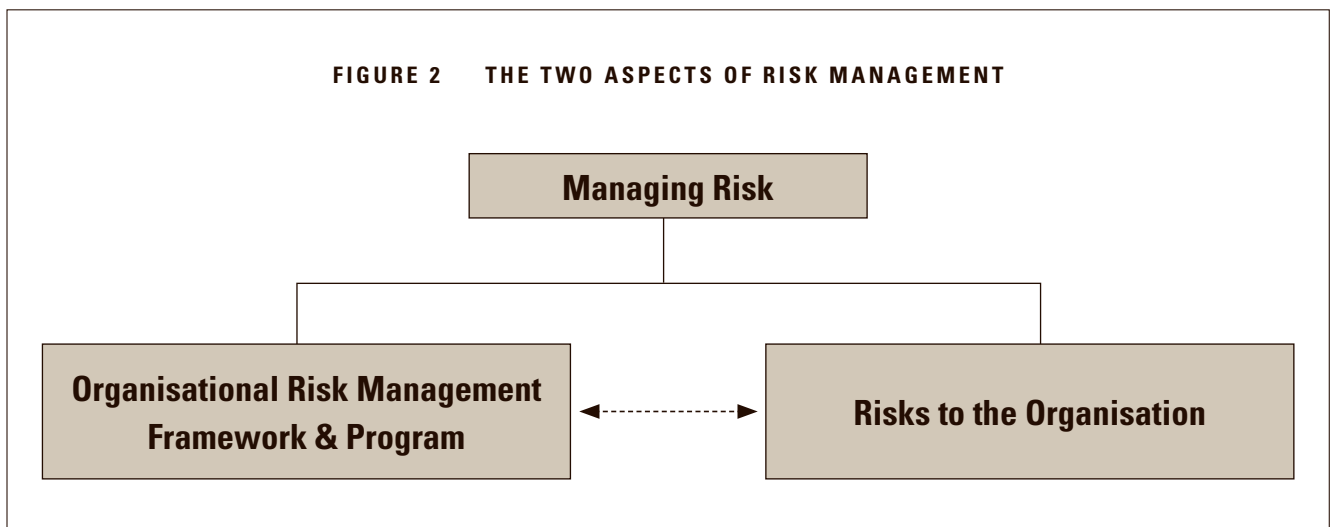
The development and identification of a positive risk culture within an organisation is not an easy task. So how is it developed? The answer lies in the relationship between an organisation's environment and the demonstrated or adopted behaviours of its people. An ideal culture is one where understanding, managing and taking calculated and acceptable risk is part of a facility management organisation's day-to-day business.

Many will argue that a culture cannot be changed overnight. At times an organisational culture is perceived as so powerful that it will resist change. So how can we effect or influence our organisation's risk culture? The key is in the way an environment of risk is created.

Adopting a framework for managing risk will create an environment that will influence behaviour and eventually shape the culture, beliefs and attitudes of those in the organisation (Figure 3). Culture is often described as 'the way things are done around here'. In a negative risk culture, people are risk-adverse, ignorant of risk or overconfident in their risk-taking. In a positive risk culture, accepting risk at the right level is just part of how things are done.

Many experts state that it will take an organisation three to five years to reach this point through the implementation of a risk management framework, which includes risk practices and principles. It takes time to develop and shape a culture, so organisations need to be persist with program implementation. Parts 6 and 7 outline how to establish a risk management framework, which will assist in setting the environment and shaping the desired culture.

FIGURE 3   DEVELOPING AN ORGANISATIONAL RISK CULTURE

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┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│  Organisational  │   │    Behaviours    │   │  Organisational  │
│   Environment    │   │   Toward Risk    │   │   Risk Culture   │
└──────────────────┘   └──────────────────┘   └──────────────────┘

   Create                  Influence                      Shape ►
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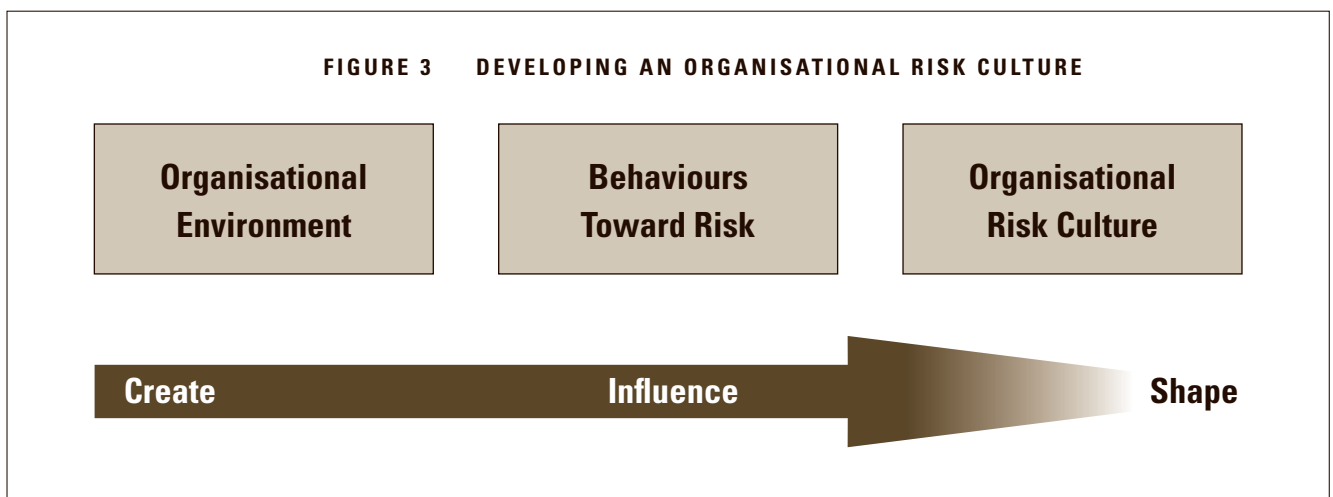
Applying Risk Management

2

SUMMARY

This part of the guide explores why risk management is required throughout the facility life cycle, the types of risk encountered in facility management, where risk management needs to be applied and how much risk management is enough.

FACILITY MANAGEMENT AND THE FACILITY LIFE CYCLE

Essentially, facility management is about planning and managing the life cycle of a facility. A facility's life cycle can be described as four distinct but linked stages: strategy and planning, facility creation or acquisition, operation or service delivery and disposal. Figure 4 illustrates the stages of the facility life cycle.

Strategy and Planning

Every facility, regardless of age, requires a level of planning and foresight to ensure that it meets the requirements of the tenant or occupant. Strategy and planning includes needs assessment, development of capability requirements, criteria for acquisition or creation and the establishment of boundaries (financial, geographical, time-based) and a strategic business approach.

Creation and Acquisition

Facility acquisition encompasses the attainment of land, the design and construction of a facility or the leasing and fitting out of a facility. Decisions made in the facility creation stage have a dramatic impact on the cost of operating a facility. For some facility projects a tender and contract stage will be incorporated into the acquisition part of the life cycle.

Operation and Service Delivery

Facility occupancy and service delivery is the operational end of facility management. It is typically the stage of the longest duration in the life cycle and may be supported for up to 30 years. The requirements for operating a facility are largely determined by the type of facility. They may include security and emergency management, operation and maintenance of building services and materials, management of environmental impacts and occupational health and safety issues, provision of a wide range of office and general support services, as well as space management and lease administration. In some cases, grounds maintenance is required and provided.

Effective management of the operational phase of a facility's life cycle will impact on the productivity of the firm, the health, security and safety of its workforce and of visitors to that organisation's facility. It will also partly determine the environmental impacts of an organisation's operations.

FIGURE 4   THE STAGES OF THE FACILITY LIFE CYCLE
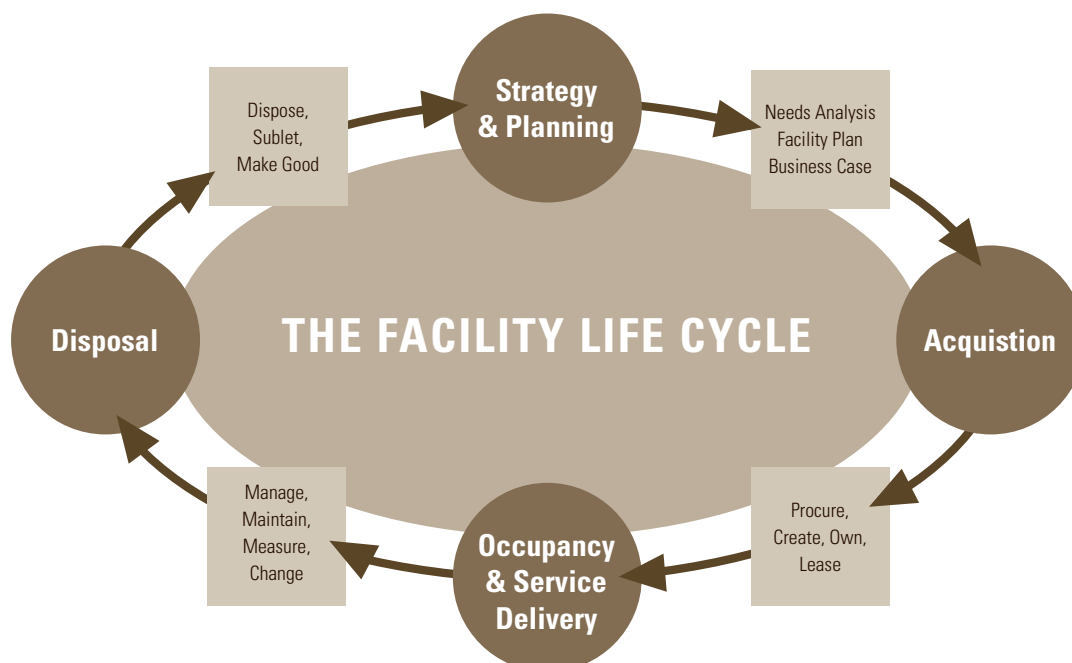
Major refits of a facility regularly punctuate the operational life of a facility. They are largely dictated by the changing functional needs of the owners or users. Typically, refits will occur every eight to 10 years and incorporate major upgrades of internal workspaces and the technology supporting the workforce. In commercial offices, refits will usually address dated furnishings, internal building fabrics, communications and outdated services. Facility refits are a specialised activity requiring skills and experience often not found in construction firms. Refit activities can take from several weeks to a year, depending on the flexibility of the original facility design and the level of reconfiguration needed to meet the contemporary functional needs of a facility.

Disposal

Facility disposal is the final stage of a facility's life cycle. Disposal may involve sale or demolition and/or replacement of the facility.

APPLYING RISK MANAGEMENT TO THE FACILITY LIFE CYCLE

Strategy and Planning

The objectives of risk management in this phase of the life cycle include:

- identifying major contributors to risk and the significant factors involved

- providing input into the design and or planning process and assessing the overall adequacy of the design and/or plan

- identifying and evaluating possible safety measures in the design and/or plan

- providing information to assist in developing procedures for normal and emergency conditions

- evaluating risk with respect to regulatory and other requirements

- evaluating alternative design and/or planning concepts

- providing a risk-based approach to the development of corporate strategies and plans.

Acquisition

The objectives of risk management in this phase of the life cycle include:

- complying with legislative and regulatory requirements

- providing a risk-based approach to purchasing, contracting and outsourcing

- incorporating a risk-based approach in cost–benefit analysis and decision-making.

Occupancy and Service Delivery

The objectives of risk management in this phase of the life cycle include:

- providing input into the optimisation of normal operating, maintenance and emergency procedures

- providing information on the significance of the risk for operational decision-making

- evaluating the effects of changes in organisational structure, operational practices and procedures and system components

- complying with legislative and regulatory requirements

- monitoring and evaluating experience for the purpose of comparing actual performance with organisational goals, objectives, policies and procedures.

Disposal

The objectives of risk management in this phase of the life cycle include:

- evaluating the risk related to disposal activities and ensuring that relevant requirements can be met

- providing input into disposal procedures.*

Extract from AS/NZS 3931:1998

WHERE SHOULD RISK MANAGEMENT BE APPLIED?

Almost every industry and discipline is represented in facility management. The scope and context of application of risk management across facility management ranges from public safety in a local council setting to a risk assessment in a petroleum refinery to due diligence in a property purchase. Risk management is a process that can be applied in any context and to any task or activity. Differences in application will be in the tools, techniques and risk approach used. Table 2 lists common applications of risk management in facility management against the facility life cycle to illustrate where risk management needs to be applied.

TABLE 2 SCOPE OF APPLICATION OF RISK MANAGEMENT IN FACILITY MANAGEMENT

STAGE IN FACILITY LIFE CYCLE	AREA OF FACILITY MANAGEMENT	APPLICATION OF RISK MANAGEMENT	
strategy and planning	business continuity planning	business interruption procedures and strategies	
	emergency planning	contingency planning disaster planning and recovery	fire and life safety management
	corporate planning	facilities strategic plan facilities business plan	triple bottom line
	facility management and strategy	financial management change management compliance – legal and regulations promotion of brand and image preservation of reputation change organisational structure	business management client management facility plan business case service strategy procurement strategy
	information technology	processes	technology
	human resource management	training culture	knowledge occupational health and safety
	strategic facility and property management	master planning leasing strategy	accommodation planning asset management plan
	budgeting and taxation	life cycle budgets capital expenditure budgets operational expenditure budgets	tax planning depreciation planning asset allocation

TABLE 2   SCOPE OF APPLICATION OF RISK MANAGEMENT IN FACILITY MANAGEMENT   [CONTINUED]

STAGE IN FACILITY LIFE CYCLE	AREA OF FACILITY MANAGEMENT	APPLICATION OF RISK MANAGEMENT	
acquisition	real estate due diligence	Building Code of Australia compliance	asset records and data
	procurement	policies and procedures tendering delivery mode contract type contract negotiations	implementation receipt commissioning transition post occupancy reviews upgrade/enhancements
	outsourcing	corporate knowledge business continuity	data management intellectual property
occupancy and service delivery	operations	insurance equipment environment customer relations infrastructure housekeeping emergency response security	internal service level agreement processes standards monitoring reporting data collection occupational health and safety
	lease management	contract obligations	
	essential services	fire services upgrades legislation	compliance legal liability codes
	maintenance	planned preventive reactive/urgent	planned repairs conditions assessment
	vendor and contract management	service standards service level agreement time cost	quality outsourcing partnering
	project management	plan approval	delivery completion
	space management	relocation churn stacking space standards	furniture standards occupational health and safety staff well being
disposal	disposal	property sale asset sale transfer	relocation sublease make good asset register update

HOW MUCH RISK MANAGEMENT IS ENOUGH?

The establishment and maintenance of accurate and useful records is an important part of effectively communicating risk information. Documentation can assist in the application of the risk management process in a logical manner, facilitate review and provide an audit trail. In essence, each stage of the risk management process should be recorded so it can be easily communicated. Part 5 explains the difference between the level of formalisation and documentation and record-keeping.

One of the perceived drawbacks or complaints about a formal risk management approach is the requirement for documentation. Some perceive that documenting risk is excessive and unnecessary. Comments such as this demonstrate that the right level or type of documentation has not been appropriately determined when establishing the context. How much risk management is enough?

THE RIGHT LEVEL OF FORMALISATION

Answering the following questions may assist in determining the correct level of formalisation and the subsequent depth of analysis.

Why does this risk assessment need to be documented?

What information needs to be communicated? To whom?

What is the best means of communicating this information?

FORMALISATION

There are three levels of formalisation in risk management.

- Intuitive: This is an on-the-run mental or oral risk management process, which uses the risk management protocols without any paper records. The time-critical nature of some activities means that experienced personnel are sometimes required to consider risk and make decisions within a tight time frame. It is especially useful in selecting a course of action when an unexpected event occurs. Simply, it is the type of risk management that can be applied through intuition in time-critical or dynamic environments.

- Planned: This involves the formal application of the risk management process as depicted within these guidelines. It uses experience, judgement and all available information to determine the risks, and then assesses the risks and considers appropriate controls. Often the planned level of formalisation is best done collectively with input from the stakeholders.

- Calculated: This is a much more thorough risk assessment or risk management plan. It may involve more research and collection of data, and more comprehensive consultation with stakeholders and technical subject experts. This approach would be used when there is a major project or activity that involves significant input from other stakeholders, resources or equipment. The business continuity plan and emergency/crisis plan are examples of this level of formalisation. It is generally conducted by a team of people and takes the form of a detailed report or business case for a given situation or scenario.

Figure 5 shows the various components of risk management formalisation, indicating the level of rigour that should be selected. The components are by no means prescriptive, nor are they 'black and white'. The overlap or suitability of each component should be considered when developing a risk management plan for an activity or application.

FIGURE 5 LEVELS OF RISK MANAGEMENT FORMALISATION

	CALCULATED	PLANNED	INTUITIVE
Organisational Framework	Enterprise		
		Strategic	
		Operational	
Accountability or Responsibility	CEO & Board Members		
		Executive / Business Managers	
		Facility Managers	
		Supervisor	
		Operator	
Type of Assessment	Quantitative		
		Semi-quantitative	
		Qualitative	
Examples of Documentation	Business Continuity Plan		
		Risk Management Plan / Risk Assessment	
			Intuitive Assessment
Means of Preparation	Focus Group / Reference Panel		
		Conference / Brainstorm	
		Checklist / Reference Guide	
			Individual Judgement
Means of Communication	Detailed Report		
		Instructions / Procedures / Risk Assessment / Plan	
		Conference / Risk Assessment / Plan	
			Verbal Instructions
Means of Review	Investigation / Enquiry / Audit		
		Periodic Review	
	Post Activity Review		
	Formal Internal Reporting		
			Informal Reporting

LEVELS OF RISK MANAGEMENT PLANNING AND FACILITY MANAGEMENT APPLICATIONS

Table 2 illustrated where risk management needs to be applied in relation to the facility life cycle. Figure 6 indicates how much risk management is required for different facility management applications. It is not prescriptive – it is intended as a guide for facility managers during planning of risk management activities. The position and range of each bar will vary between organisations.

SCOPE OF RISK MANAGEMENT APPLICATION IN FACILITY MANAGEMENT

Formal	Level of formalisation	Informal
Long	Time spent in preparation	Short
High	Level of complexity	Low
Many	Number of stakeholders	Few
Large	Significance of activity	Small

FIGURE 6   LEVELS OF FORMALISATION IN FACILITY MANAGEMENT APPLICATIONS

	CALCULATED	PLANNED	INTUITIVE
Strategy & Planning	Business Continuity Planning		
	Emergency Planning		
	Corporate Planning		
	Information Technology		
	Human Resource Management		
	Strategic Facility And Property Management		
	Budgeting And Taxation		
Acquisition	Real Estate Due Diligence		
	Procurement		
	Outsourcing		
Occupancy & Service Delivery	Operations		
	Lease Management		
	Essential Services		
	Maintenance		
	Vendor And Contract Management		
	Project Management		
	Space Management		
Disposal	Disposal		

DIMENSIONS OF RISK WITHIN FACILITY MANAGEMENT

Once a facility manager has determined where risk management needs to be applied (the application) and the level of formalisation (intuitive, planned, calculated) appropriate to the significance and complexity of the activity, consideration needs to be given to the category or risk dimension relative to the application.

Risk categories or risk dimensions assist in risk planning and communication. They provide a focal point for the scope and boundaries of the assessment. It is also common for a risk dimension to have a specific risk approach or specific tools and techniques. Understanding facility risk dimensions will enable the facility manager to select the most appropriate tools and techniques for risk identification and risk analysis.

Common Risk Dimensions in Facility Management

To ensure a commonality of language and consistency in communication, common risk dimensions for facility management have been identified and should be used by the facility manager when developing risk criteria as a component of establishing the risk management context.

Risk dimensions include:

- business management
- change
- churn
- client
- community relations
- contracts
- customer
- environment
- equipment
- financial
- fraud
- infrastructure
- insurance
- knowledge

- legal and regulations
- maintenance
- occupational health and safety
- organisational structure
- personnel
- project management
- procurement
- public image and reputation
- security
- training
- vendors.

CASE STUDY: CHOOSING RISK DIMENSIONS

A facility manager was asked to develop a facilities risk management plan on the merger of a large corporate bank and superannuation company to determine the most suitable facility of the new organisation. The facility manager was directed to focus on the following risk dimensions in the development of the plan:

- churn
- customer
- financial
- infrastructure
- legal and regulations
- project management.

Tips for Formal Risk Management

- **Formalising risk management is primarily about communicating risk information. Determine why, how and to whom at the outset.**

- **Ensure the level of formalisation selected matches the significance, complexity and or potential consequences of the activity under consideration.**

The Risk Management Process

3

SUMMARY

This part of the guide describes the process of risk management which a facility manager can apply to be consistent with AS/NZS 4360:1999. The key concepts include processes of communication and consultation, establishing the context, risk identification, analysis and evaluation, and acceptance, treatment, monitoring and reviewing of risks. Risk analysis includes the key concepts of the use of consequence and likelihood. Examples and application of qualitative and quantitative methods are also given.

OVERVIEW OF THE RISK MANAGEMENT PROCESS

Risk management is an integral component of the facility life cycle. The entire risk management process is iterative, enabling it to be repeated many times with additional or modified risk evaluation criteria, leading to continuous improvement.

The elements of the risk management process are summarised in Figure 7, and are as follows:

Communicate and consult with the internal and external stakeholders as appropriate at each step of the risk management process.

Determine the internal, external and risk management context, and establish the structure of the analysis and the criteria against which risk will be assessed.

Identify, as the basis for further analysis, what can happen, why and how events could delay, prevent or enhance the achievement of organisational objectives.

Analyse the range of possible consequences and how they might occur. Determine the likelihood of each consequence and hence the level of risk. The risk will depend on the effectiveness of existing controls.

Compare the estimated levels of risk with pre-established risk criteria and decide whether to treat a risk based on the potential benefits or adverse outcomes. Risks can then be ranked to identify priorities for their management.

Risks identified as low priority and are tolerable, may not require treatment. For other risks, develop and implement a management plan, which should include consideration of funding and other resources, and timeframes.

Monitor and review the risks, the performance of the risk management system, and the changes that may affect it.

Each step in the risk management process is explained in further detail within Part 3.

FIGURE 7 RISK MANAGEMENT PROCESS SUMMARY (SOURCE: AS/NZS 4360:1999, FIGURE 3.1 RISK MANAGEMENT PROCESS OVERVIEW)
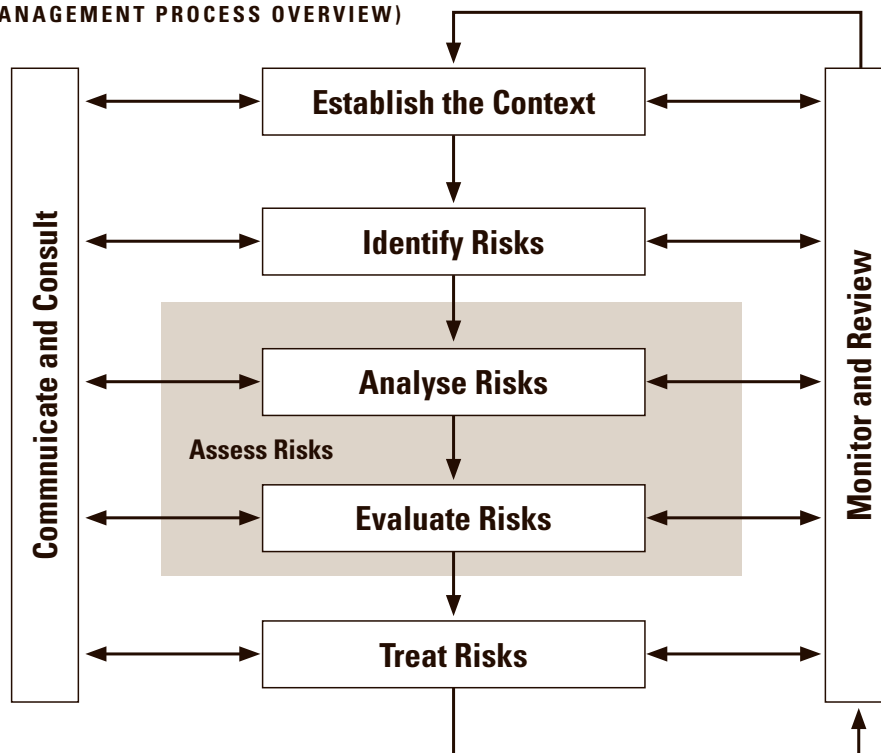
COMMUNICATE AND CONSULT

Communication and consultation are significant considerations throughout the risk management process. Communication and consultation may be internal to the organisation, or external, between the organisation and its stakeholders.

To ensure effective communication, the facility manager should develop and implement a communication strategy or plan as early as possible in the process. This strategy or plan should identify internal and external stakeholders and communicate their role and responsibilities in the process, as well as address issues relating to risk and management.

Consultation is a broad two-way process. It typically involves talking to a range of stakeholder groups and exchanging information and views. It can include a variety of techniques, ranging from networking with key individuals to formal meetings. It can involve input into the decision-making process from a range of external sources, and access to information that would not be available otherwise. When setting up a consultation process, the extent to which external input should influence the organisation's final decision must be carefully defined.

Stakeholder perception of risks can vary due to differences in assumptions, values, culture, personal beliefs or concerns as they relate to the risk or issue under discussion. Stakeholders are likely therefore to make judgements of the acceptability of a risk on this basis. Stakeholders can have a significant role in the decision-making process, so their perceptions of risks, as well as their perceptions of benefits, should be identified, understood, addressed and recorded.

Stakeholder communication should incorporate regular progress reports on the development and implementation of the risk management plan and in particular provide relevant information on the proposed treatment strategies, their benefits and planned effectiveness. The communication of this type of information to stakeholders is one of the indicators of good corporate governance.

Tips for Effective Communication and Consultation

- **Determine at the outset whether a communication strategy and/or plan is required**

- **Determine the best method or media for communication and consultation**

- **The significance or complexity of the issue or activity in question can be used as a guide as to how much communication and consultation is required: the more complex and significant to the organisation, the more detailed and comprehensive the requirement.**

ESTABLISH THE CONTEXT

The risk management process occurs within the framework of an organisation's strategic, internal, external and risk management context. Establishing the context defines the basic parameters within which risks must be managed and sets the scope for the rest of the risk management process.*

Internal Context

Before any risk management activity is commenced at any level of an organisation, it is important to review and understand the organisation's structure, goals, objectives and functions. This is where the facility manager examines the risk management activity in question against the internal context, so that subsequent risk decisions are not made in isolation from the broader goals and objectives of the organisation. This approach encourages long-term and strategic thinking: managing risk is often about avoiding a long-term adverse consequence and planning for long-term opportunities.

External Context

This step defines the environment in which an organisation operates. This involves an examination of how the organisation and facility management impacts, and is impacted by, external factors and influences. This includes social, economic, legal, cultural, environmental, financial, operational, business, competitive, political, public and client perceptions of image and reputation. Analysis of these factors will identify the organisation's strengths, weaknesses, opportunities and threats in the external environment.

AS/NZS 4360:1999 para 4.1.1

When considering the external context, it is important to include both internal and external stakeholders. Their objectives and perceptions of risk should be considered, and a means to communicate and consult with these agencies or parties should be established.

Tips for Establishing the Internal and External Context

- **Determine the significance of the activity to the achievement of the organisation's goals and objectives**

- **Ensure that the objectives of the activity are aligned with the overall strategic objectives and plan of the organisation**

- **Identify internal and external stakeholders and determine their involvement in the risk management process.**

CASE STUDY: INTERNAL AND EXTERNAL CONTEXT

A substantial city council located in a central business district decided to commence a substantial office accommodation decentralisation program to create regional business centres in the suburban areas of the city.

The objectives of the program included:

- minimal disruption to customer service during relocation
- efficient relocation of staff to prevent staff loss
- minimal cost of churn.

External stakeholders included state rail and public transport operators, contractors and vendors. Internal stakeholders included management, individuals, unions and supporting services.

To ensure the perceptions of staff were understood and managed the facility manager organised for a series of reports and presentations to be delivered to staff at key intervals in the planning phase of relocation.

Establish the Risk Management Context

This step defines the context of the activity or issue under examination and includes objectives, scope, boundaries and the business unit(s) involved. The process should be undertaken with the full consideration of the need to balance cost, benefits and opportunities.

Establishing the parameters and boundaries of the activity or issue also involves the determination of the following:

- timeframe
- resources required
- roles and responsibilities
- additional expertise required
- internal and external relationships, e.g. projects, business units
- life cycle considerations
- record-keeping requirements
- depth of analysis required.

Depth of analysis required will be dependent on the type of risk, the information that needs to be communicated and the best method for communicating this information. This critical stage will be determined by a combination of the following:

- complexity of the activity or life cycle
- potential consequence and severity of potential outcome
- importance of capturing lessons learned so that corporate knowledge of risk associated with the activity can be developed
- importance of the activity to the achievement of the objectives
- information that needs to be communicated to stakeholders
- types of risks and hazards associated with the activity.

Tips for Establishing the Risk Management Context

- **Define the objectives of the activity, task or function**

- **Determine the purpose and scope of the risk study, i.e. what will be included and excluded from the scope**

- **Determine the relationship of the activity to the facility life cycle**

- **Identify any legislation, regulations, policies, standards and operating procedures that need to be complied with**

- **Decide the depth of analysis required and allocate resources accordingly**

- **Decide what the output of the process will be, for example a risk assessment, a job safety analysis and the purpose for which it will be used (training employees, or a board presentation or deciding whether to enter into a contract). The output and purpose will determine the most appropriate structure for the assessment and the type of documentation required.**

CASE STUDY: RISK MANAGEMENT CONTEXT

An industrial services company was considering whether to move from its current 2500 m² office into larger premises or to refurbish and expand the current office.

The risk management context included:

- the primary objective: determine the most cost-effective solution

- a timeframe for completion of three months

- a budget of $20,000 for external expertise and support

- the output would be a risk assessment which compared all known and potential costs and all know and potential benefits on both options, that was cognisant of the complete facility life cycle.

Develop Risk Criteria

Risk criteria are those against which risk is evaluated to determine if treatment is required. They are developed in this step as part of establishing the context, but can be further refined as risks are identified and analysed.

Risk criteria are also referred to as the acceptable level of risk for a specific activity or event. In determining the criteria, the dimensions of risk need to be measured. Common dimensions of risk in facility management are illustrated in Figure 1 (p. 8). The criteria must be appropriate to the type of risk and the risk dimension. Some examples of risk criteria are given in Table 3.

The risk criteria may also be detailed in terms of what the facility manager is willing to accept. Alternatively, the level of risk that is unacceptable may be detailed. Either method may be used and its suitability will be dictated by the activity.

Tips for Developing Risk Criteria

- **Decide or define the acceptable level of risk for the activity in question**

- **Determine what is unacceptable**

- **Define the level of risk that can be accepted by the facility manager, management and the organisation as a whole.**

TABLE 3   EXAMPLES OF RISK CRITERIA

DIMENSION	RISK CRITERION
financial	specified dollar loss or gain
churn	number of workspace moves as a percentage of total employees per annum or average total dollars per workspace move per person
occupational health and safety: manual handling	defined in legislation and codes of practice
brand image and reputation	number and type of media exposure both positive and negative
project management	deliverable timeframe and/or set cost

Define the Structure for Risk Analysis

This involves structuring the activity or issue under examination into a logical set of steps or elements. These steps or elements of the activity or issue then provide a framework for detailed analysis. The structure chosen will depend upon the type of activity or issue, its complexity and the context of the risk.

IDENTIFY THE RISKS

This step aims to identify the risks to be managed. A systematic identification process appropriate to the facility life cycle is essential to this step so that significant risks are not overlooked. Identification should include all risks, whether or not they are under the control of the organisation conducting the activity. All aspects should be considered, including those associated with the activity, personnel, equipment, environmental factors, legal requirements and, where appropriate, social or political factors. Problem areas and risks can be identified with the help of reliable sources.

Risk identification involves examining all sources of risk and the perspective of all stakeholders, both internal and external. It is important to identify each source so that the analysis can consider the contribution each makes to the probability and the potential consequences of the risk. The aim of risk identification is to develop a comprehensive list of risks that impact the organisation's objectives. This is achieved by answering three questions.

What can happen?

How can it happen?

Why could it happen?

Where could it happen?

When could it happen?

Methods available for identifying risks

Effective risk identification requires expert knowledge of the subject matter, lateral or imaginative thinking, and an appropriate structured methodology. The method selected will depend on the nature of the activity under review and the type and level of risk. For a summary definition of risk identification methodologies, refer to Appendix A.

Tips for Effective Risk Identification

- **Select a risk identification methodology that is appropriate to the type of risk and the nature of the activity**

- **Involve the right people in risk identification activities**

- **Take a life cycle approach to risk identification and determine how risks change and evolve during this cycle.**

CASE STUDY: IDENTIFYING RISKS

An IT development company has just secured a major government contract. A requirement of the contract is that company security surpasses a specific level set by the government and the government requires a security risk management plan prior to contract commencement.

The facility manager determined that there were two main issues being:

1. The inability to meet contract specifications and hence not being able to secure the contract; and

2. Unauthorised release of confidential information, resulting in a contract breach and potential loss of contract.

For number one the structure for risk identification centred on the contract specifications to determine how the company might fail to meet each of the contract specifications. For number two the structure for risk identification focused upon how confidential information might escape from the company. This included a background examination of personnel, contractors, vendors and suppliers, firewall testing of the IT management system, access to terminals and a site inspection by a qualified security consultant.

ANALYSE THE RISKS

Risk analysis involves consideration of the sources of risk, their consequences and the probability that those consequences may occur. Factors that affect consequences and probability need to be identified. Risk is analysed by combining consequences and probability in the context of existing control measures.

Elements of Risk Analysis

This step can be confusing because such a wide range of tools is available. When used correctly it will assist in putting an element of rigour behind the assessment. In essence, the elements of risk analysis are:

- identification of existing strategies and controls that act to minimise negative risk and enhance opportunities
- determination of individual elements (consequence and likelihood)
- application of appropriate analysis methods and tools
- estimation of the level of risk by combining consequence and probability
- consideration of uncertainties in the estimates.

Analysis Techniques

The purpose of risk analysis is to provide information to decision-makers, whose decisions may concern priorities, treatment options, or balancing costs and benefits. Just as decisions differ, the information needed to make these decisions differs.

Not all areas within facility management will be able to use the same risk assessment technique. Organisations involved in specialist areas of risk management need to tailor their analysis tool to suit their operating context and the selected risk criteria. Examples of the common risk analysis tools utilised in the facility management context are given in Appendix B.

Types of Analysis

There are three categories or types of analysis that can be used to determine the level of risk.

Three types of risk analysis: qualitative, semi-quantitative and quantitative.

The three methods are compared and explained in Table 4 overleaf.

Tips for Effective Risk Analysis

- **Risk analysis is usually done in the context of existing controls – take the time to identify them**
- **The risk analysis methodology selected should where possible be comparable to the significance and complexity of the risk being analysed, i.e. the higher the potential consequence the more rigorous the methodology**
- **Risk analysis tools are designed to help you rank or prioritise your risks or to make decisions between options. To do this they must be designed for the specific context and the risk dimension under analysis.**

TABLE 4   THE THREE METHODS OF RISK ANALYSIS

QUALITATIVE RISK ANALYSIS			
Method	**Description**	**Advantages**	**Disadvantages**
Qualitative (comparative) e.g. • brainstorming • evaluation using multi-disciplinary groups • specialist and expert judgement • structured interviews and/or questionnaires • word picture descriptors and risk dimensions.	This is a formal method to record a subjective judgement on consequences and the probability of risk, i.e. it produces a word or verbal picture of the magnitude of the risk (often referred to as consequence and probability descriptors). This is a viable option where there is no data available.	It is simple, easy to understand and reduce resource expenditure and cost. A risk matrix or fine chart (see Appendix B) enables a common understanding of subjective judgement to be applied and ensures consideration of both the consequences and their probability.	It is based on subjective judgement and intuitive reasoning, which may be biased and degrade the integrity of the results. Independent verification should be sought to validate analysis. Care should be exercised when determining a level of risk for rare events as subjective judgements of the likelihood of rare events is unreliable.
SEMI-QUANTITATIVE RISK ANALYSIS			
Method	**Description**	**Advantages**	**Disadvantages**
Semi-quantitative	Semi-quantitative methods may involve giving subjective weighting to different risk factors, such as lack of experience or poor equipment, and adding these to give a risk level or numerical outcome. This number can then be used to set criteria for risk acceptability. Note that this number has no real meaning in terms of frequency or probability. It is simply a level of risk on an arbitrarily defined scale.	It may assist in ranking risks in order of significance so that significant risks can be treated first. It can allow more than two factors to be included in the ranking, for example one may want to include likelihood of an event occurring and the likelihood of harm if the event occurs as separate components of the overall likelihood.	This method allows greater detail in the description of a risk, but reliability is very poor and the numbers often give an impression of far greater understanding of the risk than actually exists. They can lead to prescriptive decision-making, which removes proper judgement from the process. Sometimes the numbers give an appearance of precision where it does not exist. It is important not to interpret the results to a finer level of precision than is actually contained in the initial word rankings.

TABLE 4   THE THREE METHODS OF RISK ANALYSIS   [CONTINUED]

QUANTITATIVE RISK ANALYSIS			
Method	**Description**	**Advantages**	**Disadvantages**
Quantitative e.g. • consequence analysis • decision trees • fault tree and event tree analysis • influence diagrams • life cycle cost analysis • probability analysis.	This involves obtaining real data about potential consequences and the likelihood they will occur, and determining the factors on which consequences and likelihood depend. Quantitative estimates of consequence and likelihood may be combined to determine a single level of risk. When this occurs, the risk is usually expressed as: • probability or frequency of a particular outcome, e.g. 1 fatality per 10,000 hours of plant operation • an expected monetary value, i.e. the probability of a loss or gain multiplied by the dollar value of a loss or gain. Quantitative analysis is required when levels of acceptable risk are expressed in quantitative terms. Where quantitative information is available it should be collected, provided that the cost of collection is commensurate with the risk. Information that is not readily available but required to properly analyse risk should be identified and, if possible, collected for future study.	Estimates of risk will be more reliable where there is quantitative data, and this should be used where it is possible, practical and cost-effective. Simple quantitative analysis will show that certain intuitive assumptions are not always true.	Data may not be available, or may be impractical to collect and analyse. This method may not be cost-effective in relation to the significance of the risk. Quantitative methods are not absolute models of reality. The final answers are only as good as the model, assumptions and information used.

EVALUATE THE RISKS

Risk evaluation involves comparing the level of risk found during the analysis process with previously established risk criteria, and deciding whether these risks require treatment.

This step is about deciding whether risks are acceptable or need treatment. Low or tolerable risks may be accepted. 'Acceptable' means nothing needs to be done except monitoring and periodic review to confirm the risks remain at this level. If risks are not low or tolerable they must be treated.

Risk Acceptance

One of the reasons risks are formally identified and managed is to provide assurance that the risks are not only known, but also accepted at the appropriate level and that the right people are aware of them. A risk may be accepted for the following reasons:

- The cost of treatment far exceeds the benefit, so that acceptance is the only option (applies particularly to lower ranked risks)

- The level of the risk is so low that specific treatment is not appropriate with available resources

- The opportunities presented outweigh the threats to such a degree that the risk is justified

- The risk is such that there is no treatment available; for example, the risk that a project might be terminated following a change of government is not within the control of the organisation.

Table 5 provides guidance on risk acceptance and risk referral. It consists of levels of authority within the risk acceptance process and suggested actions.

Facility risks must be considered by all members of an organisation. In particular, facility managers and owners will have specific responsibilities in managing risk. When advising on upgrading or other remedial options (e.g. as result of building audit) consultants may be engaged to identify, quantify and advise the owner of risk treatment strategies. The owner would then consider the cost and the residual risk associated with each treatment strategy and make their decision of acceptance.

TABLE 5   ACTIONS IN RISK ACCEPTANCE

KEY ACTIONS	ACCEPT	REFER	AMEND	CANCEL
I have the resources to implement recommended treatments.	✓			
I do not have the resources or authority to implement recommended treatments.		✓	✓	✓
The risk level is above my level of delegated authority.		✓	✓	✓
The risk level is within my level of delegated authority.	✓			
The risk level is within my level of delegated authority; however, the task or activity is significant, new, unusual or infrequent.	✓	✓		

TREAT THE RISKS

Risk treatment is about considering options for treating risks that were not considered acceptable or tolerable at the previous step. Risk treatment involves identifying the range of options for treating risk, assessing those options, preparing risk treatment plans and implementing them.*

When it comes to treating risk, the aim is to remove negative outcomes of risk and enhance the positive outcomes if possible. Because this is not always viable or compatible with achieving objectives, the following options may assist in the minimisation of negative risk or the increase of the impact of positive risk.

1. Avoid the risk: One method of dealing with risk is to avoid the risk by deciding not to proceed with the activity likely to generate the risk. Risk avoidance should only occur when control measures do not exist or do not reduce the risk to an acceptable level. Uncontrolled or inappropriate risk avoidance may lead to organisational risk avoidance, resulting in missed opportunities and an increase in the significance of other risks.

AS/NZS 4360:1999 para 4.5

CASE STUDY: AVOIDING THE RISK

A large suburban hospital has been using a specific brand of antiseptic hand wash for several months. Recent research indicates a remote possibility of serious skin disorders in long-term users. As a result of this research hospital administration discontinue the usage of the hand wash, thereby avoiding the risk.

2. Change the probability of the occurrence: This option enhances the probability of beneficial outcomes and reduces the possibility of loss.^

CASE STUDY: CHANGING THE PROBABILITY

A treatment for reducing potential liability regarding the Disability Discrimination Act 1992 is to plan for and implement disability access. By having an active plan facility managers can reduce the probability of successful litigation.

3. Change the consequences: This will increase the size of gains and reduce the size of losses.# This may include business continuity plans and emergency and contingency plans.

CASE STUDY: CHANGING THE CONSEQUENCES

A pharmaceutical manufacturing company developed a contingency plan and procedures to be activated in the event of a market product recall. The emphasis of the contingency plan is to reduce the consequences of such a recall and prevent further damage to the company's image and reputation.

4. Transfer the risk: Part or most of risks may be transferred to another party who will share responsibility for it. Mechanisms for risk transfer include contracts, insurance, partnerships and business alliances. It is important to note that risks can never be completely transferred, because there is always the possibility of failures that may impact on the organisation. Transfer of risk may reduce the risk to the original organisation without changing the overall level of risk.

CASE STUDY: TRANSFERRING THE RISK

A major regional airport hosts an annual open day and small air show as a public outdoor event. The airport director has elected to contract the management and coordination of the event to an aviation events management company, thereby transferring in part the associated risks of the event to another party.

5. Retain the risk: After risks have been reduced or transferred, residual risk may be retained if it is at an acceptable level.

Assessing Treatment Options

Evaluating treatment options requires judgement of both the cumulative and individual effect of risks to determine the residual level of risk. Residual risk must be evaluated for acceptability before treatment options are implemented.

Cost-Benefit

Facility managers need to know whether the cost of any particular method of correcting or treating a potential risk is justified. Considerations include:

*   number of treatments required
*   benefit to be gained from treatment
*   other treatment options available, and why the chosen one has been recommended
*   effectiveness of the treatment
*   timeframe
*   total cost of treatment option
*   total reduction in residual risk
*   legislative requirements.

Owners of facilities and employers are required to provide a safe workplace. If existing facilities require upgrade to fully meet codes of practice and standards, a risk management approach should be adopted to demonstrate due diligence. Compliance risks considered should include legislative requirements, severity of the hazard, ways to control it, the effectiveness and suitability of control measures, and their cost. A staged action or risk treatment plan can be used to document the risks and outline the organisational approach to a remedy. Appropriate consultation with stakeholders should also occur.

^ AS/NZS 4360:1999 para 4.5.1(a)   # AS/NZS 4360:1999 para 4.5.1(b)

Preparing and Implementing Treatment Plans

Before implementing any of the chosen risk treatment strategies, the facility manager should develop and document a risk treatment plan. This plan should provide sufficient information for people to understand their assigned accountabilities and responsibilities, and include resource allocation details and a timeframe. The final documentation should include a budget, appropriate objectives, and milestones on the way to achieving those objectives.

Risk Recovery

Risk recovery differs from the other elements of the risk management process in that it is reactive rather than proactive. Risk management acknowledges the element of uncertainty or chance. In the event of an adverse incident, organisations need to plan for recovery. Risk recovery is concerned with a corrective approach for the situation at hand. Organisations should adopt a structured approach to planning for recovery. The outputs of this planning may include specific contingency plans, emergency management plans, business continuity plans or crisis response. They need to identify what constitutes an incident and when recovery plans should be activated.

Tips for Implementing Risk Treatments

- **The key to managing risk is in implementing effective treatment options**

- **In implementing the risk treatment plan, ensure that resources are available, and define a time scale, responsibilities and a method for monitoring progress against the plan**

- **The team assessing risks and identifying treatment options may not have the executive authority to implement the treatments, therefore a system may need to be established to ensure ownership of the identified risks so that actions does follow recommendations.**

MONITOR AND REVIEW

Monitoring and review is an essential and integral step in the risk management process. It is necessary for the facility manager to monitor risks and review effectiveness of the treatment plan, strategies and management system that have been set up to effectively manage risk within an organisation.

Risks need to be monitored periodically to ensure changing circumstances do not alter the risk priorities. Few risks remain static, therefore the risk management process needs to be regularly repeated, so that new risks are captured in the process and effectively managed.

Programs and processes change, as can the political, social and legal environment and goals of an organisation. Accordingly, it is necessary for the facility manager to routinely review the context to ensure the ways in which risks are managed remains valid.

Areas to monitor include:

- risks, to ensure that plans remain up to date
- residual risk levels
- analysis (verify against real data if possible)
- understanding of risk
- quality of decisions
- treatment implementation
- effectiveness of treatment.

Possible methods of review are:

- appeal tribunals, courts, commissions of inquiry
- ombudsman, parliamentary committee
- formal investigation: board of inquiry, accident investigation
- internal check programs
- evaluation of risk documentation
- physical inspection
- program evaluation
- review of organisational policies, strategies and processes: corporate plans.

SUMMARY OF RISK MANAGEMENT STEPS

Figure 8 illustrates the subcomponents of each step of risk management process and illustrates the cyclical nature of the process.

FIGURE 8   THE RISK MANAGEMENT PROCESS (SOURCE: AS/NZS 4360:1999, FIGURE 4.1)

Establish the Context
- The strategic context
- The organisational context
- The risk management context
- Develop criteria
- Decide the structure

Identify Risks
- What can happen?
- How can it happen?

Analyse Risks
Determine existing controls

Determine likelihood

Determine consequences

Estimate level of risk

Evaluate Risks
- Compare with criteria
- Set risk priorities

Accept risks — YES

NO

Treat Risks
- Identify treatment options
- Evaluate treatment options
- Select treatment options
- Prepare treatment plans
- Implement plans

Communicate and Consult

Monitor and Review

Risk Assessment

4

SUMMARY

This part of the guide is an extension of Part 3. It describes the difference between risk assessment and risk management. In some instances, technical specialists such as a facility manager may be asked to conduct a risk assessment whereas the broader management team will be responsible for the management of those risks identified and assessed. This part explains the additional aspects that may require consideration in a risk assessment, using examples of analysis tools from Appendix B.

WHEN IS A RISK ASSESSMENT NEEDED?

Risk assessment is a component of good facility management. In principle, a systematic risk assessment should be undertaken by a facility manager if there is:

- a legal requirement to do so

- a requirement to reduce litigation potential

- a potential for a significant loss or gain

- uncertainty

- opportunity

- the introduction of 'new' elements into the workplace or organisation; this includes new equipment, procedures, contracts, suppliers, projects, business ventures, clients, products and services

- business continuity planning

- change

- a need to test or validate existing procedures

- a requirement to quantify risk or opportunity into dollar terms

- a lack of risk information for decision-making

- a difficult decision to be made.

Risk assessments may be integrated with assessments of facilities conducted for other related purposes, for example building audits and performance assessments. These have much in common with risk assessments as they usually involve assessing existing facilities against performance requirements or targets, analysing performance gaps, considering upgrade options and developing a works program.

ESSENTIAL FEATURES OF A RISK ASSESSMENT

Risk assessment incorporates risk identification, risk analysis and risk evaluation. Prioritisation using risk analysis tools is only important in deciding priorities for treatment or to highlight the category of risk for people who need to know.

For a risk assessment to be effective as part of a wider organisational risk management program it must be consistent with the Australian and New Zealand Standard on risk management and the organisational approach to managing risk. The features listed below are essential for the efficient conduct of the risk assessment process:

- knowledge of organisational risk management policies and procedures and approach to managing risk

- a means or strategy for communicating and consulting with appropriate stakeholders on the scope and conduct of the assessment

- a team that represents a cross-section of disciplines and levels of experience

- access to and use of a subject matter expert for the activity under examination

- an understanding of the objectives and purpose of the risk assessment

- established risk criteria

- an appropriate structure to conduct the risk assessment

- use of a detailed and structured risk identification methodology appropriate to the context and type of risk examined

- an appropriate structure for recording all the risk identification findings

- access and use of appropriate context specific risk analysis tools appropriate to the selected risk criteria

- an appropriate structure for recording the risk analysis and risk evaluation results

- a mechanism to report progress and the risk assessment findings.

ESSENTIAL CONTENTS OF A RISK ASSESSMENT REPORT

The content of a risk assessment report will vary according to the level of formalisation and the context of the assessment. In principle, a risk assessment report should include:

- a brief description of the activity subject to the risk assessment

- an overview of the internal, external and risk management contexts

- a list of supporting references

- a list of limitations and assumptions developed during the conduct of the risk assessment

- a list of personnel and stakeholders who contributed to the development of the risk assessment. This should also include a description of how and what they contributed and highlight any appropriate qualifications and or experience

- the risk criteria

- the structure of the assessment

- a description of the risk identification methodology utilised and a summary of results

- a copy of the risk analysis tools utilised in the risk assessment if new or different to those specified in organisational policies

- a summary of risk analysis results

- risk evaluation results and recommendations for treatment

- a subjective confidence or reliability rating on the information presented in the report

- a signature of endorsement of results.

Tips for Developing a Risk Assessment Report

- **Define and understand your audience. Craft your risk assessment report to meet their expectations.**

- **Limit the use of facility management jargon and terminology, particularly if you are communicating outside your industry or organisation. If this is unavoidable, provide a glossary as an annexe to your report.**

- **The depth of your risk assessment report should be reflective of the significance and/or complexity of the activity being assessed.**

Recording the Risk Management Process

5

SUMMARY

This part of the guide describes the various types of documentation that a facility manager or people within a facility management organisation may use to communicate and document risk information. One of the most commonly used types of documentation is the risk management plan (RMP). This part of the guide describes how to prepare for, develop and evaluate an RMP.

TYPES OF RISK DOCUMENTATION

In line with the levels of risk management formalisation, each step of the risk management process may require a level of documentation.

Business Continuity Plan

The purpose of a business continuity plan (BCP) is to ensure the business or organisation will continue and recover from a disruptive event or disaster. The BCP identifies potential disruptive business events and disasters, details appropriate treatment strategies and communicates roles and responsibilities of involved personnel. The BCP scope is broader than an emergency plan and includes the following key components:

- business or organisational context
- risk identification and analysis
- business impact analysis
- business continuity strategies
- emergency response and operations
- implementation plan
- public relations and crisis communication
- coordination with public authorities.

Emergency and/or Disaster Recovery Plan

An emergency/disaster plan details the protocols and responses that are immediately put in place to control emergencies when prevention fails. The plan will consist of emergency procedures, responsibilities and specific tasks that must be undertaken during an emergency. Facility management contexts for emergency plans include industrial accidents, natural disasters, transport accidents, infrastructure failure, environmental disasters, acts of terrorism and bushfire response. A fire and emergency manual is a common example of an emergency of disaster recovery plan.

Job Safety Analysis

A job safety analysis (JSA) examines the hazards associated with a particular task. A JSA is conducted by first breaking the task into discrete steps to identify, assess and control the hazards associated with the task. The completed JSA is the equivalent of a risk assessment and is used as a minimum standard for safety for the examined task. Facility management contexts for the use of a JSA include the incorporation of a JSA into job descriptions, compliance with occupational health and safety regulations and contractor safety management.

Risk Assessment

A risk assessment details the analysis and evaluation of previously identified risks. Risk assessments are used for prioritising risks for further treatment and determining the acceptability of analysed risks. A risk assessment usually documents the context, risk identification, analysis and evaluation phases of the risk management process and is often included as a supporting annexe to other documents or reports. A risk assessment is a significant and essential part of a risk management plan. Risk assessments are explained in detail in Part 4.

Risk Register

A risk register details the hazards and risks that have been identified within a particular workplace, activity or situation. Risk registers are useful when there is limited subject matter expertise available to personnel in conducting their risk assessments. A risk register can be used as a 'lessons learned' database and to provide further detail as to the analysis of the subject risk, issue or hazard.

Risk registers should be kept at the operational level and reviewed regularly by the facility manager. The risk register should be a dynamic document that identifies the following areas for each risk:

- source
- nature of outcome and how it might happen
- existing controls
- description of consequence and likelihood
- initial risk rating and vulnerability to external/internal factors.

An example of a risk register template is provided in Appendix C.

Risk Treatment Plan and/or Action Plan

A risk treatment and/or action plan documents the management controls to be adopted for each risk, and lists the following information:

- individuals responsible for implementing the plan

- resources to be used

- budget allocation

- timetable for implementation

- details of the mechanism and frequency of review for compliance with, and effectiveness of, the treatment plan.

Risk Management Plan

A risk management plan (RMP) formally documents the entire risk management process for a particular activity. An RMP can be used for any activity, regardless of complexity or context. It is the most common method of documenting complete risk information. The way to identify the difference between a risk assessment and a risk management plan is to identify how many and which steps of the risk management process have been recorded. A risk management plan is like any other management plan in that it documents a decision, allocation of resources, timelines and responsibilities.

An RMP is used when the activity is out of the ordinary, new or complex and where existing assessments are not appropriate for use. To develop an RMP the elements in the risk management process need to be developed. These aspects are then detailed on the RMP. An RMP contains both a risk assessment and a risk treatment plan. An example of an RMP template is provided in Appendix C.

INTEGRATION WITH FACILITY MANAGEMENT DOCUMENTATION

Integration of risk documentation with existing systems and documentation is the primary aim whenever practical.

Examples of integration are:

- incorporating and embedding the structure and elements of the risk management plan into the facility management plan

- inserting risk assessment templates and guidance into existing manuals, e.g. purchasing and contracting manuals, asset management manuals, and operations and maintenance manuals.

DEVELOPING A RISK MANAGEMENT PLAN

The most common method of risk documentation is the RMP. The checklists in tables 6 and 7 will assist in preparing for and developing an RMP.

TABLE 6   CHECKLIST FOR PREPARING TO DEVELOP AN RMP

PREPARATION FOR DEVELOPMENT OF AN RMP	COMPLETE
• Obtain relevant references/policy/legislation/contracts	
• Collect background data, past RMPs and analyse content	
• Determine the purpose of the RMP	
• Determine the audience of the RMP	
• Identify stakeholders that need to input into RMP development	
• Obtain guidance/confirmation of level of risk management formalisation required	
• Obtain guidance on type of analysis (qualitative, semi-quantitative, quantitative) to be used	
• Determine how the RMP is to be developed, e.g. working group, seminar, brainstorming session; notify stakeholders/members of working group	
• Identify resources required and seek approval for allocation	
• Identify timeframe required to produce the RMP.	

TABLE 7　GUIDANCE FOR RMP DEVELOPMENT

Establish the context	• **Establish the internal context** • **Establish the external context** • **Identify internal and external stakeholders** • **Establish the risk management context** • **Develop risk evaluation criteria** • **Determine the structure for risk analysis** • State the objectives and goals for the activity • Determine the significance and importance of the activity • Determine the parameters and limitations of the activity • Identify the benefits and opportunities of the activity • Identify the greatest area of impact or risk (e.g. security v safety) • Define what type and level of risk assessment needs to be carried out • Determine the roles and responsibilities of the stakeholders participating in managing the risk.
Identify the risks	• **What can happen?** • **How can it happen?** • Identify the risks to be managed • Include all significant risks whether or not under control of organisation • List what might impact on the objective (risk) • Identify possible causes of risk/causal factors • What can happen? What could go wrong? • Utilise expertise of participants • How and why could it happen?
Analyse the risks	• **Determine existing strategies and controls** • **Determine consequence and probability** • Determine how reasonable it is to expect the risk to affect activity • What information do you need to communicate and why? • Determine the most suitable means to communicate this information • Determine the ranking of risk based on significance and impact.

Note: Bold items are required to maintain integrity with the risk management standard; other items are included for consideration.

TABLE 7   GUIDANCE FOR RMP DEVELOPMENT

Evaluate the risks	• **Compare against risk criteria** • **Set risk priorities** • **Determine whether risk treatment is required** • Determine if the existing risk level is within your bounds • If this risk level is not acceptable, prioritise risk for further action • If the risk level falls into the low or tolerable category, it may be accepted with minimal further treatment.
Control the risks	• **Identify treatment options** • **Assess treatment options** • **Prepare treatment options** • **Implement treatment plan** • **Return to 'analyse' and 'evaluate' elements of the process and re-evaluate risk with the treatment in place to determine the residual risk level** • **Ensure control can be implemented prior to involvement in activity** • Determine whether the implementation of treatments is within authority • Refer risk to a higher authority if treatments cannot be implemented within given constraints, authority/resource allocations.
Monitor and review	• **Determine timeframe for RMP review** • **Determine who will be responsible for evaluating treatment effectiveness** • Determine process for capturing change so that RMP remains accurate and relevant.

Note: Bold items are required to maintain integrity with the risk management standard; other items are included for consideration.

EVALUATING RISK MANAGEMENT DOCUMENTATION

Prior to authorising or approving risk management documentation, the facility manager needs to ensure the accuracy and completeness of the evaluation and assessment of risk. The level of risk management formalisation will determine the complexity of the evaluation required. When an RMP is presented to the facility manager for acceptance and signature, he or she must personally evaluate the RMP to ensure they are satisfied with the level of assessment, the scope of consideration and the judgement used in the development of the RMP.

Evaluation criteria used to conduct a review of any risk management documentation should use the risk management process as the foundation. In addition to this, the reliability of the information and its accuracy can be evaluated using various techniques. These techniques may include:

- checking level of completeness against the organisation's procedures and policies
- checking level of expertise and experience of those who compiled the RMP
- personally assessing the quality of work
- considering the reliability of the skills and judgement of the person/group who compiled the RMP.

Table 8 is a checklist of key questions to ask when evaluating an RMP. The checklist is not definitive, nor is it inclusive of all the areas that a good RMP may contain.

TABLE 8   CHECKLIST FOR EVALUATING AN RMP

PROCESS	COMPONENT	QUESTIONS
Communicate and consult	Communication and consultation	• Have the appropriate stakeholders been consulted? • Is the method of communication of the RMP suitable?
Establish the context	Reference and/or authority	• Are they appropriate/correct?
	Objectives of the RMP	• Are the objectives clearly stated? • Is the purpose of producing an RMP stated?
	Scope of the RMP	• Is the activity clearly defined? • Does the scope of the RMP match that of the activity?
	Purpose of the RMP	• Why has the RMP been raised?
	Context description	• Is there a clear definition of context?
	Stakeholders	• Is there evidence that a stakeholder analysis has been conducted (if appropriate)? • Have stakeholders been identified? • Were stakeholders involved in developing the RMP? • Are there any stakeholders missing?

TABLE 8   CHECKLIST FOR EVALUATING AN RMP   [CONTINUED]

PROCESS	COMPONENT	QUESTIONS
Establish the context	Risk criteria	• What are the risk criteria? • Who defined the criteria? • Is the unit of measurement appropriate to the audience?
	Structure for risk analysis	• Is the level of formalisation and depth of analysis appropriate to the complexity or significance of the activity or potential consequences?
Identify the risks	Identification	• Has a suitable method/structure for analysis been used? • Is the method chosen appropriate to the complexity or significance of the activity or potential consequences? • Does the list of identified risks look complete? • Does it reflect worst-case scenarios? • What is the reliability of the data collected? • Were stakeholders consulted?
Analyse the risks	Analysis	• Has a suitable method/structure for analysis been used? • Is the analysis qualitative or quantitative? • Have any analysis tools been used? If so, which ones? • If qualitative, what descriptors for consequence and probability have been used? Are they tailored for the context? • Is there evidence that all sources of data/information have been used in analysis? • Are consequence and probability reported separately or are risk levels being reviewed?
Evaluate the risks	Evaluation	• Is it clear that a decision has been made to treat risks? • Is there a requirement to rank risks? Do you agree with the outcome?

TABLE 8   CHECKLIST FOR EVALUATING AN RMP   [CONTINUED]

PROCESS	COMPONENT	QUESTIONS
Treat the risks	Treatment	• Are there statements of treatments under the banner of current procedures? – Treatments need to be above and beyond the everyday normal. • Have the appropriate treatment options been selected? • Is there evidence that the proposed treatments have been or are currently being implemented? • How effective will the treatments be in reducing the risk level? Has this been accurately assessed? • Do benefits of treatment outweigh the cost? • Are the treatments in the sphere of responsibility of the individual implementing them? • Am I the appropriate person or has the appropriate person accepted the residual risk?
Monitor and review	Monitor and review	• How is this RMP to be used? • Has everyone who needs to read it done so? • Is there a process for amendment and improvement? • Is there a process in place for post activity review of the RMP? • Contingency planning – if it doesn't work, what will we do?

Framework for
Risk Management

6

SUMMARY

The latest approach to risk management includes the design, establishment and implementation of a organisation-wide approach to risk management. Many organisations have achieved this by setting up a formal risk management program. This section of the guide is designed to provide managers and executives within the facility management industry with guidance on setting up or improving the whole organisation's approach to risk management. It needs to be read in association with Part 2.

RISK MANAGEMENT AND CORPORATE GOVERNANCE

Every organisation is governed by (a set of) rules and principles which enable its effective and transparent operation. Transparency in decision-making, accuracy in reporting and adequacy in compliance are all essential elements of good governance. The three pillars of governance are:

- compliance: meeting regulatory and statutory obligations

- auditing: ensuring the effective and proper running of processes and systems

- risk management: ensuring the proactive minimisation of loss and maximisation of opportunities.

Risk management is instrumental in demonstrating effective governance of an organisation. All organisations require a framework for the management of risk. A good framework caters for the two sides of risk management: the risks themselves and the organisational program that allows and supports the management of risk. Figure 9 provides a useful framework for risk management and has been adopted by many organisations in the public and private sectors.

FIGURE 9   A FRAMEWORK FOR RISK MANAGEMENT
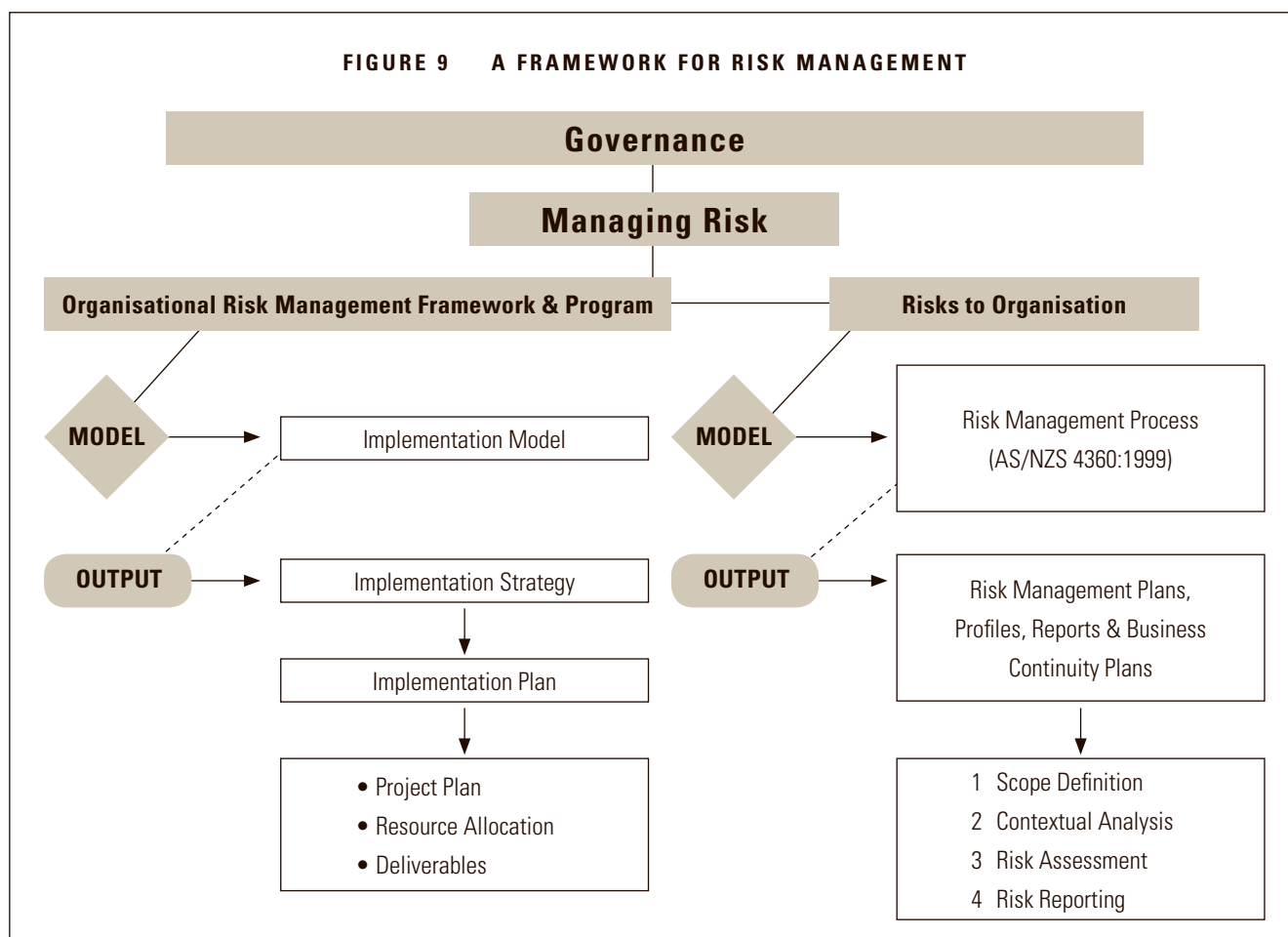
ORGANISATIONAL RISK MANAGEMENT FRAMEWORK AND PROGRAM

Figure 9 is an expansion of Figure 2 (page 13). The left-hand side of Figure 9 depicts the flow of activities that constitute a framework for the management of risk that is robust, relevant and appropriate to the organisation.

The Implementation Model

The implementation model provides a consistent structure for planning the setup of the organisation's risk management program. It is explained in detail in Part 7. The outputs expected from this planning process are known as a company-wide implementation strategy and plan. The implementation strategy should detail the focus and priority for risk management within the organisation.

The Implementation Strategy

As is the case with any introduction or revision of an organisational process, achieving smooth integration is the key to success. Depending on your level of management and the role of your business unit, responsibility for elements of implementation may be shared. However, all managers should be familiar with and commit to the following aspects of the implementation:

- A balanced and holistic approach is taken

- The process has management support demonstrating a genuine commitment to risk management

- Implementation is consistent with the implementation framework and methodology based on AS/NZS 4360

- A positive attitude is adopted toward risk management

- There is management and oversight for the establishment, maintenance and improvement of risk management

- Risk management is applied across all activities conducted by the organisation

- Effective and practical guidance for risk planning is provided to personnel that is easily accessible and effectively communicated

- Appropriate policy guidance detailing the applications of risk management is widely available

- There is a structured, internal review of compliance and effectiveness of the system.

CASE STUDY: IMPLEMENTATION STRATEGY

A not-for-profit, retail chain of stores decides to establish a corporate risk management program. The general manager decides to run an initial scoping activity with the finance manager, human resources manager, regional managers and safety manager before discussing an approach to implementation with the board.

The company is currently planning for a site relocation of their major sorting and logistic site in Sydney and has a number of risk issues to be identified.

Following consultation, the organisation decides to take a three-stage strategy to introducing risk management to the organisation:

1   Address immediate risk issues with relocation and redevelopment of distribution site (via specific risk assessment – first six months.)

2   Conduct a thorough needs assessment by workshops, site visits and consultation of key retail sites to identify key application areas where risk management is needed.

3   Roll out in staged approach over a two-year period:

   - business management (property selection, marketing, human resources, finance)

   - logistics, distribution and sorting facilities

   - retail operations

   - change management (store refurbishments, policy development etc.).

The Implementation Plan

As part of business planning, there is a need to:

- understand requirements

- identify the risks to be managed

- acknowledge the resources required to manage risk

- identify limitations that may impact upon operations

- understand the priority needed for a particular operation

- recognise the relationship of this process with other corporate objectives and strategies.

An implementation plan for a risk management program or system should be based upon the elements of the implementation model (Part 7). In addition to this, the implementation plan should include:

- roles and responsibilities for implementation
- nominated implementation plan sponsor
- details of plan endorser
- time frame for implementation
- project schedule (if appropriate)
- resource plan.

RISKS TO THE ORGANISATION

The right-hand side of the governance model in Figure 9 depicts the focus on the management of key risk areas. Depending on the size and complexity of an organisation, various risk identification and recording processes may be implemented.

The model used in this aspect of the corporate risk program is the risk management process as outlined in Part 3. The output of this activity may range from an individual risk assessment to a corporate risk profile or register (see the various types of documentation outlined in Part 5).

CASE STUDY: MANAGING KEY RISK AREAS

The not-for-profit, retail chain of stores established the following risk-reporting framework:

- Each store developed a risk register against their store business plan, which was reviewed with the regional manager on a monthly basis.
- All regional managers are required to evaluate the store risk registers and identify the top 10 risks for their region. This information is passed to head office, collated in the corporate risk register and reviewed on a quarterly basis with the regional manager and business manager from the head office.
- The corporate risk register is updated on a quarterly basis and presented to the board by the general manager. With eight regions, the corporate risk register ranks the 80 risks, and the top 10 corporate risks are briefed each quarter.

- In addition to the hierarchy of risk reporting within the retail chain, a record of individual risk assessments and business continuity plans developed on management decisions is kept. The sponsor of this information was the business manager located at head office.

EMBEDDING RISK MANAGEMENT

Setting up a risk management framework is only an initial step. The key to developing a positive risk culture within an organisation is by embedding risk consideration into day-to-day decision-making, both at the strategic level and for routine activities.

The process that needs to be followed to embed risk management is similar to the implementation and planning required to introduce any new system or program. The following four-stage approach will set an organisation on the path to embedding risk management into day-to-day operations:

- Determine an organisational approach
- Conduct a review of current processes and how risk is currently managed
- Develop the corporate strategy for implementation
- Seek and gain executive endorsement.

The starting point for commencing the journey of embedding risk management within an organisation is to review what is currently in place. This risk management review or self assessment could be conducted by key staff who may be responsible for developing the risk management program. Alternatively, an external consultant could be engaged to conduct this review. The review or self-assessment is not designed to be an audit but a systems survey of what is in place. Most organisations currently have 60 percent to 75 percent of their risk management system in place, yet it is normally not readily identified as being under the banner of risk management and therefore difficult to locate and utilise.

The information from the review is to be used by managers as the basis to conduct a gap analysis against the organisation's requirements. From there, an implementation plan detailing how any areas of deficiency can be addressed can be developed and communicated to the relevant authorities within the organisation.

Some organisations may mandate the submission of review results or self-assessment findings to a designated agency for review. If this occurs, it is important that the organisation does not view the review as a test but as an opportunity for baselining current progress against a predetermined model. It may even provide an opportunity to seek support in the provision of tools to help bridge the gaps.

To embed the risk management process, an organisation must clearly define and communicate the reason for adopting this process. Part 1 outlines the many benefits risk management can offer an organisation. Once these objectives have been determined the most suitable means of application can then be established.

Tips for Embedding Risk Management

- **Identify where you want to apply risk management within the company and identify the supporting business processes in these areas**

- **Review the business processes and identify where risk management consideration needs to be adopted**

- **Design or develop an appropriate risk management system**

- **Link documented planning processes, reporting methods and audit requirements to your risk management system**

- **Hold your staff to account through individual performance monitoring and review.**

THE WAY FORWARD

Any organisation wishing to implement a risk management framework and program, should select an approach to implementation as discussed in this part of the guide. Figure 10 summarises the stages for implementation to be considered in the establishment, development and rollout of a risk management program. The duration of this staged approach will vary from organisation to organisation. An organisation may choose to establish a taskforce, working group or project team to undertake this approach. Alternatively, external assistance may be sought.

FIGURE 10   SUMMARY OF RISK IMPLEMENTATION FRAMEWORK AND PROGRAM

STAGE 1	Scope & Needs Analysis	→	• Baseline • Identify Current Systems • Needs Assessment
STAGE 2	Implementation Approach	→	• Implementation Strategy • Implementation Plan • Responsibility, Accountability and Resources
STAGE 3	Development	→	• Select Risk Management Framework • Develop Risk Management System • Develop Supporting Elements Against Implementation Model
STAGE 4	Introduction and Roll Out	→	• Introduce Risk Management to Organisations • Trial Risk Management System If Required • Review and Improve

Risk Management Implementation Model

7

SUMMARY

This part of the guide presents a model for implementation that can be used by organisations to set up their risk management program. It should be read in conjunction with Part 6, which links this model with the wider risk management framework.

IMPLEMENTING RISK MANAGEMENT

Every organisation should have a risk management implementation plan, which provides direction and instruction on how the risk management system and program will be developed, established and maintained within that organisation or department. Managers at all levels, including the company facility manager, should be familiar with the corporate approach and understand the role that they may play in the overall implementation. Facility managers should be aware of how risk management is to be implemented throughout their organisations and the role they have for the implementation at the business unit level.

THE IMPLEMENTATION MODEL

The risk management implementation model is the model used to design, develop and establish an organisational risk management program. This model was developed following industry benchmarking of 12 organisations in the public and private sector who have successfully established their risk management program. This model has been successfully adopted by many organisations. It depicts the eight essential elements of a risk management program that need to be identified and embedded into an organisation's planning processes (Fig. 11).

FIGURE 11   THE RISK MANAGEMENT IMPLEMENTATION MODEL

EFFECTIVE IMPLEMENTATION

- Top Level Support
- Identify Requirements and Set Objectives
- Policy Definition and Endorsement
- Risk Management System
- Education, Promotion and Training
- Risk Reporting
- Audit and Evaluation
- Measure Effectiveness, Review and Improvement

→

POSITIVE RISK CULTURE

Top Level Support

The key to commencing a company-wide risk management program is to engage senior-level commitment. This commitment may be gained or demonstrated in many different ways and may include:

- establishment of a risk management governance committee

- development and release of a policy statement on managing risk within the organisation

- allocation of resources to establish and maintain the risk management program

- provision of support and commitment to risk activities (including risk assessments, development of risk registers, annual risk workshops or seminars on managing risk).

Many successful risk management programs have nominated a risk 'champion' who has taken on the responsibility of driving the introduction or implementation of risk management practices within an organisation. Like the introduction of any new program, change management principles need to be adopted if a change in organisational culture is to be achieved.

Identify Requirements and Set Objectives

Risk management is an effective management process that will assist the facility manager to discharge their duty of care. As a manager it is important that the approach taken to managing risks at the organisational level is rigorous and systematic and not solely reliant on intuition. As indicated above, it is critical to clearly identify an organisation's requirements. The requirements for managing risks depend on many factors, which will be closely related to normal business planning. Answers to the following questions may assist in identifying requirements.

- What benefits do you want to gain from risk management?

- What are the risks your organisation faces?

- Why do you need to manage your risks in a structured manner?

- What activities do you wish to apply the risk management process to and why?

- What is the current risk culture of your organisation?

- Are there any factors that may hinder smooth implementation?

An organisation that has already been using a structured or formalised approach to managing risks may want to consider the following questions:
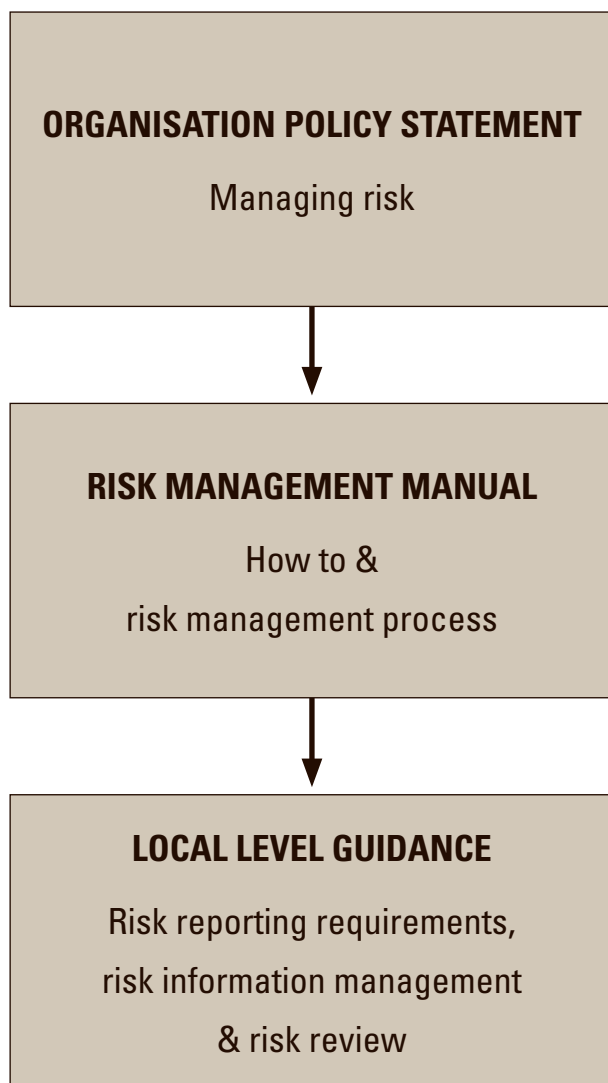
- Is the current system assisting the organisation to achieve its objectives?

- Is there acceptance of the process?

- Has a realistic and balanced approach to formalisation been achieved?

- Is the organisation clear as to what risks need to be managed?

- Is the risk reporting regime useful and purposeful?

- What is the current risk culture? (risk-averse/risk-accepting/risk-aware).

Policy Definition and Endorsement

All organisations, regardless of size, need to be clear about their approach to managing risk. The development and promulgation of policy is an effective and authoritative method of communicating this information. This risk management manual provides much of the needed process and principles. It is however recommended that a high-level policy statement is developed and distributed to all staff within the organisation. This policy statement will include the philosophical foundation for the management of risk within the organisation whereas the next two layers of policy are focused upon providing the organisation process and working level procedures. Figure 12 depicts the levels or hierarchy of policy which may be required in an organisation. The company policy statement on managing risk may include:

- the organisation's objectives, desired outcomes and context

- nature of the application system (including tools and techniques)

- circumstances or activities in which the system will be applied

- roles and responsibilities

- risk reporting

- details of performance measurement.

FIGURE 12   LEVELS OR HIERARCHY OF POLICY

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┌─────────────────────────────────┐
│                                 │
│  ORGANISATION POLICY STATEMENT  │
│                                 │
│         Managing risk           │
│                                 │
└─────────────────────────────────┘
               │
               ▼
┌─────────────────────────────────┐
│                                 │
│     RISK MANAGEMENT MANUAL       │
│                                 │
│            How to &             │
│      risk management process    │
│                                 │
└─────────────────────────────────┘
               │
               ▼
┌─────────────────────────────────┐
│                                 │
│       LOCAL LEVEL GUIDANCE       │
│                                 │
│    Risk reporting requirements,  │
│    risk information management   │
│          & risk review          │
│                                 │
└─────────────────────────────────┘
```

The Risk Management System

In essence, many managers and staff are comfortable with the risk management process and are convinced of its utility and benefit. However, many systems prove ineffective if the system, tools or techniques are not selected on the basis of meeting the organisational requirements. Many often assume that risk management is 'just a matrix' and can easily get caught in the

calculation or quantification of risk. The suite of tools, techniques, guidance, documentation templates and supporting processes are known as an application system. In order for the application system to be useful and fit for the purpose, the context of the organisation's use needs to be established; for example:

- activities to which the risk management process is to be applied (also known as applications)

- risk dimensions upon which the application is based

- the level of risk management planning required for each of these applications

- processes already in place

- the objectives of adopting a structured approach to managing risk.

The risk management system describes the documentation, supervision and review processes required to support implementation of risk management. Some of the fundamentals of the risk management system are expanded upon in Part 1. Key components of the risk management system include:

- risk management process

- identified list of where risk management is to be applied and to what level

- common language: glossary of terms, including word pictures or descriptors for consequence or likelihood and risk levels

- checklists, guidance, documentation and templates

- risk management tools (including risk analysis tools)

- risk management techniques (for identification, treatment and communication)

- guidance on the acceptance of risk

- 'lessons learned' database

- other business supporting processes that are part of the way risk is to be managed.

For higher risk or complex organisations, care must be taken in selecting or developing a risk management system to ensure it is fit for the purpose.

Education, Promotion and Training

Managing risk is everyone's responsibility and the key to effectively managing risk is education. Some managers may be aware that managing risk is part of what they do in everyday life. When placed on the scale of risk management planning, this application of the process falls into the category of immediate risk management. As personnel are required to move along this line of planning into a detailed or deliberate assessment, the requirement for more knowledge increases. Equipping personnel with the right level of 'know-how' to complete their job is important. The promotion of a positive attitude toward risk is also needed. If this successfully takes place, a balanced risk culture will develop within the organisation.

The Facility Management Association of Australia has developed competency standards for the accreditation of professional facility managers (Facility Management Accreditation System; see 'How to Use This Guide' and Part 10). These standards provide an effective framework for assessing the competency of personnel in relation to key responsibilities and risks within the organisation.

Risk management competencies need to be built into professional development programs and staff training courses. Risk management competencies are built into the facility management competencies at practice, manage and lead levels. The focus will vary depending on the proportion of operational versus strategic skill sets required.

One of the responsibilities of any manager is to ensure that positive attitudes towards the management of risk are cultivated within the workplace. Where a specific skill set is required to identify and manage risks particular to a workplace, managers are directly responsible for the provision of appropriate 'on the job' training. The knowledge will develop within an organisation as personnel couple their experience with skills gained (Fig. 13).

Managers are responsible for ensuring that their people maintain appropriate qualifications and meet training requirements specified by their organisation. Managers should conduct annual risk management refresher training for those identified staff and should embed this into company induction training where appropriate. Where the manager identifies that there is a deficiency in the knowledge, skills or attitudes toward risk management within the organisation, internal action should be taken to rectify the deficiency.

Those agencies responsible for training personnel should embed competency-based risk management training into training packages. These identified risk management modules should be in line with the organisation's implementation plan. The organisation should provide oversight of risk management training throughout the training department to ensure consistency and economical use of resources.

FIGURE 13
ASPECTS OF RISK MANAGEMENT COMPETENCY

RISK MANAGEMENT COMPETENCY

| Skills | Attitudes | Knowledge |

Risk Reporting

In order to receive the best results from a risk management program, a closed loop approach to reporting and collating risk information should be utilised. A key component of this is the adoption of a structured approach to risk reporting. Firstly, managers need to identify what is required to be reported. Secondly, they need to integrate risk reporting with existing reporting systems. A plan for the appropriate reporting of risk must be clarified during the implementation stage. Risk reporting needs to flag issues that have the potential of impacting on the objectives and desired outcomes identified earlier.

Audit and Evaluation

As part of risk management implementation, managers should clearly identify their audit criteria. These may be set by the organisation's senior staff or may be developed internally by audit staff. Monitoring the results of the implementation of risk management against the requirements and objectives set will ensure that the implementation plan is relevant and stays on schedule.

There are two aspects to the auditing function of risk management:

- *Audit for compliance*: Each organisation should ascertain the essential elements of their risk management program and include them as an auditable requirement in the risk management implementation plan and policy document. Essential elements might include performance measures, responsibilities, audit criteria, applications and system construction. Preparation for the annual audit should begin with the results of the previous audit, along with an assessment of the current situation. Periodic review of performance against the audit criteria will ensure successful compliance

- *Evaluation for effectiveness*: Managers should establish performance criteria in order to determine the success of the risk management implementation plan and ongoing program. Due consideration should be given to the objectives of all levels of the organisation. Potential outcomes may be considered adverse or positive.

The latter of the two aspects is the more difficult and requires a person with a developed level of knowledge in the field of risk management.

Measure Effectiveness, Review and Improvement

Once the objectives of the risk management program have been set, performance measurements can then be developed using the desired objectives as the criteria. In some instances, organisations may provide specific guidance on how performance is to be measured. Performance can be demonstrated by both positive and negative progress. At a higher level, performance will be incorporated into the corporate business plan. It will assist in the identification of audit results.

Results may be judged against those of previous events of similar nature, providing the context and conditions are taken into account in evaluating the differences in outcome, if any.

Throughout the implementation process, the effectiveness of the system being introduced needs to be reviewed and, if necessary, changes to the implementation plan made. An external agency or organisation should assist or conduct this review to reduce the potential effects of organisational 'blindness'.

There are a number of scales and rating systems that can be used to assess an organisation's use of risk management. The scale in Table 9 has been used by Australian Standards in the past to rate the use of risk management techniques within an organisation. It is:

TABLE 9   RATING SCALE FOR USE OF RISK MANAGEMENT TECHNIQUES

Superior	The risk management techniques are considered effective and efficient.
Effective	The risk management techniques are considered appropriate and effective. However, the potential exists to improve the efficiency of the risk management techniques through, for example, reducing the number or introducing more efficient techniques.
Limited	Significant weaknesses have been identified and action plans must be developed to address these issues within a reasonable time frame.
Deficient	Severe weaknesses have been identified and require urgent attention. Action plans must be developed to avoid, transfer, reduce or manage the risk.

Appendices

8

APPENDIX A

RISK IDENTIFICATION METHODOLOGIES

Introduction

There are numerous methodologies available for the identification of risk. The facility manager needs to select the most appropriate method based on the context, level of risk management planning and the type of risk being examined. The information provided in this appendix provides an overview of the different types of risk identification methodologies available to the facility manager. For more detailed information refer to the bibliography in Part 10 of the guide.

Structured Brainstorming/War Gaming

Brainstorming allows a range of personal experience and expertise to be brought together to identify risks. Risk identification using structured brainstorming is comparable to having an agenda for a business meeting and is a way of encouraging lateral thinking because people can have ideas triggered by their interaction with others. The strengths of this approach include the ability to tap into the wide range of personal experience and expertise present. Weaknesses include not following a set structure, getting sidetracked by other issues and rushing the process. Brainstorming can be used in any facility management context, for example planning for business expansion, modifying existing operating procedures and resource problems.

Checklists and Thinking Prompts

Checklists and thinking prompts can be useful to make sure you have thought of most things but they cramp lateral thinking and are often not detailed enough to find everything (particularly rare but serious problems). Possible uses include activity or task-specific checklists and hazard checklists. Checklists and thinking prompts are particularly useful for the identification of hazard-based risks and are routinely used in the occupation health and safety context.

Flow Charts and Process Mapping

Flow charts and process mapping provide a useful structure where a diagrammatic representation of the issue aids the decision-making process, in this context the identification of risks. At each step of the process risks are considered by determining the critical requirements of each step, then asking 'How could this fail?' or 'What could go wrong here?' This is a useful structure for facility managers dealing with complex issues, for example the introduction of new procedures, systems or equipment.

Task Analysis

Task analysis is useful for activities that involve a series of steps or tasks. It forms a suitable structure for risk identification. For example, a facility manager may think through each major step in the purchase of new company premises and think about what could go wrong at each step and what opportunities could arise at each step. Task analysis is particularly helpful when developing a risk assessment based on human actions or activities, but can be adapted for any context.

Scenario Analysis

An extension of task analysis is scenario analysis, where the facility manager imagines some event that might occur and follows through the scenarios that might follow the event, again seeking to identify opportunities and risks. Scenario analysis can be formalised by the use of event trees, which are logic diagrams that follow the different paths events may take after an initiating event. An example of scenario analysis would be to consider contingencies in the event of an emergency or infrastructure failure.

Procedural Change Analysis

Where there are established procedures for undertaking a task, and these procedures are being reviewed, the steps of the procedure would form the structure for risk identification.

Equipment-based Structures

When identifying the risks associated with a new item of equipment, either the steps of using the equipment or its components may form a structure on which to base identification.

Review of Past Data

A review of past records of local and overseas experience can assist in the identification of risks. Analysis of near misses can help identify loss before it actually happens. With reliance on past data there is a danger that rare but severe events will be ignored. For example, past data on previous accidents or injuries could be referred to and used as a planning start point. There is a risk that over-reliance on past data creates a reactive response to risk that is counter to the proactive culture of risk management.

Audits and/or Physical Inspections

Audits are a means of checking that appropriate procedures and management systems are in place and working. Physical inspections are normally carried out to check whether there are any new hazards and to confirm controls. Although neither is carried out primarily for the purpose of identifying risks, both will identify risks as a matter of course. These risks should be recorded and acted upon. It should be noted that audits and physical inspections will not identify what might happen or risks that might arise on other occasions; therefore, they are a support to risk identification and should never be considered to be the sole means of risk identification.

Expert Judgement

Expert judgement requires using the best, most qualified personnel to assist in the risk identification process to get the most accurate and reliable answers. For example, regarding an occupational health and safety training issue, this may be the collective input from a group of occupational health and safety specialists, or a panel of engineers for a maintenance problem. For more complex issues, or where the team does not have the expertise, judgement may have to be sourced elsewhere in the organisation or outsourced to consultants, manufacturers, etc. The use of expert judgement in risk identification needs to be applied in all facility management contexts.

Examination of Local or Overseas Loss Experience

Examination of this data is useful to identify risks in the operational environment so that proactive treatment can be implemented. This data can be integrated into all facility management contexts.

SWOT Analysis

A SWOT analysis identifies strengths, weaknesses, opportunities and threats. It identifies the risks of relevance to an organisation. Where a SWOT analysis exists, it should be reviewed as part of understanding the internal and external organisational context and may be built on for operational/tactical level risks.

Operational Test Evaluation

Operational testing is aimed at demonstrating that risks are not present, and practical testing is carried out only after desktop risk assessments are complete. However, often operational testing will identify additional risks that require control. The main use of operational test and evaluation in facility management is in the area of introducing new equipment and systems and the modification of existing equipment and systems.

Change Analysis

Change analysis is a good method of examining the risks of changing an existing structure, process or activity.

Hazard and Operability Studies

The principles of hazard and operability (HAZOP) can be applied wherever a process or procedure can be followed through step by step and the causes of loss can be categorised by means of a list of key words, which represent deviations. The key benefit of HAZOP is that it considers a design from the view of deviations rather than the view of failures of different parts of the system. The main disadvantage is that it does not identify all risks or apply to all circumstances. It is essentially process-based and will not identify risks from outside the process itself.

Failure Mode and Effect Analysis

Failure mode and effect analysis looks at the results of component failure in equipment by asking how each component could fail and about the causes, effect and detection of failure. Although originally designed to look at physical failures in equipment, it can be adapted to consider human actions and resultant errors.

Fault Trees

Fault trees are logic trees that start with a disaster scenario (the head event) and then consider all possible causal events by first considering immediate causes, then the reasons for those immediate failures. The reasons for each failure or fault are considered until reaching a series of base events where further analysis would not make sense. The head event and a fault tree is a useful way of showing how this can happen when there are many interlinking reasons.

Fault trees are most commonly used for considering the reliability of equipment, particularly where there is redundancy built in. They can also be used as a means of risk analysis to quantify the probability of the head event when the probability of failure of the base events is known; in other words, the reliability of equipment can be predicted knowing the reliability of its components.

The structure of a fault tree is also useful for identifying causes of unwanted consequences and is used to identify the causes of major failures where there are multiple failure modes.

Surveys and Questionnaires

These are useful where it is necessary to canvas a wide range of opinion to identify risks or where there are many stakeholders who need to be included.

Possible Sources of Risk

Another method of identifying risks is to examine the possible sources of risk. It is useful to look at possible sources of risk and ask the questions 'What if?', 'How?' and 'What would be the likelihood and consequences?' A source of risk could be the team, the environment or the equipment used. Each source could then be broken into detailed subgroups and examined, asking 'What if?' and 'How?'

Hazard-based Risk Identification

This involves starting out with a list of identified potential hazards and systematically identifying the risks associated with them. This technique is normally applied to OHS audit findings or the results of a physical inspection to identify associated risks.

APPENDIX B

OVERVIEW OF SELECTED RISK ANALYSIS TOOLS

Introduction

There are numerous methodologies available for the analysis of risk. The facility manager needs to select the most appropriate method based on the level of risk management planning and the type of analysis required, i.e. qualitative, semi-quantitative or quantitative. The type of risk being examined and the availability of risk data needs to be considered when selecting a risk analysis tool. The information provided in this appendix provides an overview of the common types of risk analysis tools used in industry that are available to the facility manager. For more detailed information please refer to the bibliography in Part 10 of the guide.

RISK MATRIX

Overview

The risk matrix is the most commonly used qualitative risk analysis tool across all industries. The risk matrix provides a ranking of risk according to the relationship between consequence and likelihood. The lower the likelihood of an event occurring, the lower the overall risk. Similarly, the lower the impact of the consequence, the lower the overall risk. The overall risk may be indicated by way of a number, letter, colour or word picture. Note that the risk matrix is a two-dimensional assessment: consequence and probability are combined to generate a value for the overall risk. The risk matrix can be considered a semi-quantitative tool if the words or scales used have some quantifiable and describable value.

Methodology

Determining the context is an essential prerequisite of developing consequence, probability and risk descriptors/values. Determining the scale of assessment – the dimensions of the matrix – will then determine the requirement for levels of consequence and probability. Elements of the matrix can then be assigned values to provide for an overall value of risk once likelihood and consequence are known. These values may be in the form of actual numbers, or letters/colours/areas tied to word descriptions. Action requirements and/or a responsible agency can be assigned to each level of risk if appropriate.

Principles

The risk matrix must be specifically designed according to its context, developed for a particular purpose, and fit for use. There should be a statistical calculation or mathematical rigour when values are assigned to indicate overall risk. Word pictures need to be defined for consequence, probability and risk level, in order for the information derived by the assessment to be easily communicated, interpreted and applied.

Steps in Setting up a Risk Matrix

1   Select the descriptor and definition for the consequence of an event. Table 10 could be used to look at the risk of personal injury and financial loss with respect to chemical hazards.

TABLE 10   QUALITATIVE MEASURES OF CONSEQUENCE

DESCRIPTOR	DEFINITION
insignificant	no injuries, low financial loss
minor	first aid treatment, on-site release immediately contained, medium financial loss
moderate	medical treatment required, on-site release contained with outside assistance, high financial loss
major	extensive injuries, loss of production capability, off-site release with no detrimental effects, major financial loss
catastrophic	death, toxic release off-site with detrimental effect, huge financial loss

Source: AS/NZS 4360:1999

2   Select the words to describe the 'likelihood' of an event. Table 11 contains an example of the types of words and subsequent tailored definitions or descriptors that can be used. It is important to select ones that are relevant to the context, as well as the type of risk being looked at.

TABLE 11   QUALITATIVE MEASURES OF LIKELIHOOD

DESCRIPTOR	DEFINITION
almost certain	will occur once a year, or more frequently
likely	will occur once every three years
moderate	will occur once every 10 years
unlikely	will occur once every 30 years
rare	will occur once every 100 years

Source: Standards Australia HB 142-1999

3   Use the risk matrix shown in Figure 14 to calculate the risk. For example, a combination of moderate consequence and moderate likelihood equates to a high risk.

TABLE 12   A RISK MATRIX

LIKELIHOOD	CONSEQUENCE				
	Insignificant	Minor	Moderate	Major	Catastrophic
A (almost certain)	H	H		E	E
B (likely)	M	H		E	E
C (moderate)			**High**	E	E
D (unlikely)	L	L	M	H	E
E (rare)	L	L	M	H	H

L, low; M, moderate; H, high; E, extreme

4 Use the pre-determined risk level definitions in Table 12 to determine the level of management attention. For example, a 'high risk' requires senior management attention and specified responsibilities for treatment.

TABLE 13 RISK LEVEL DESCRIPTIONS AND MANAGEMENT LEVELS

RISK LEVEL	DEFINITION
extreme	immediate action required, senior management attention needed
high	senior management attention needed and management responsibility specified.
medium	manage by specific monitoring or response procedures
low	manage by routine procedures, unlikely to need specific application of resources

Source: Knight, 2003

5 Once all risks have been analysed using the matrix, prioritise them in terms of their risk levels, so that the extreme risks, followed by the high, medium, and low risks, can be treated in their order of importance.

Utility

The risk matrix is useful for ranking risks, especially when there are many significant risks requiring treatment and therefore allocation of resources. Facility managers should be aware of the methods used by planning staff when ranking risks in the preparation of risk treatment plans because the application and qualitative nature of word or numeric descriptors are open to interpretation. The determination of a risk level is only as reliable as its inputs. Therefore facility managers should be aware that in applying a bias the tool could be manipulated to arrive at a desired outcome. Verification of the input, (as is the case with all qualitative or semi-quantitative tools) is required. It is worthwhile to reverse-engineer the outcomes in order to verify that the appropriate method has been employed. The reverse of this concept is that judgement is made difficult when word descriptors are not applicable or well defined.

It is also important to ensure that the matrix is used according to its context. Problems can occur when the risk level is consistently assessed within a small band of values, which means that decision-makers require more qualitative judgement when determining an appropriate course of action. If the risk is consistently assessed as outside normally acceptable bounds, or at the limit of acceptability, then it is likely that the context or values used in constructing the risk matrix are flawed.

NOMOGRAM OR FINE CHART

Overview

The nomogram provides a ranking of risk according to the relationship between consequence and likelihood. The nomogram is a three-dimensional tool – consequence and likelihood (where likelihood = probability × exposure) are combined to generate an overall level of risk. This means that, unlike the risk matrix, likelihood is broken down into two components with each component (i.e. probability and exposure) considered separately. The nomogram can be considered a semi-quantitative tool if the words or scales have some quantifiable value.

Methodology

1 Determine the consequence of the potential risk and mark the consequence line on the nomogram (Fig. 15, page 64) accordingly.

2 Consider the exposure to that risk and mark the exposure line on the nomogram.

3 Estimate the probability of the potential consequences and mark the probability line of the nomogram.

4 To complete the analysis, draw a line from probability through exposure to the tie-line. Then draw a line from the tie-line through consequence to the risk score line to determine the risk level.

FIGURE 14   A NOMOGRAM FOR CALCULATING RISK
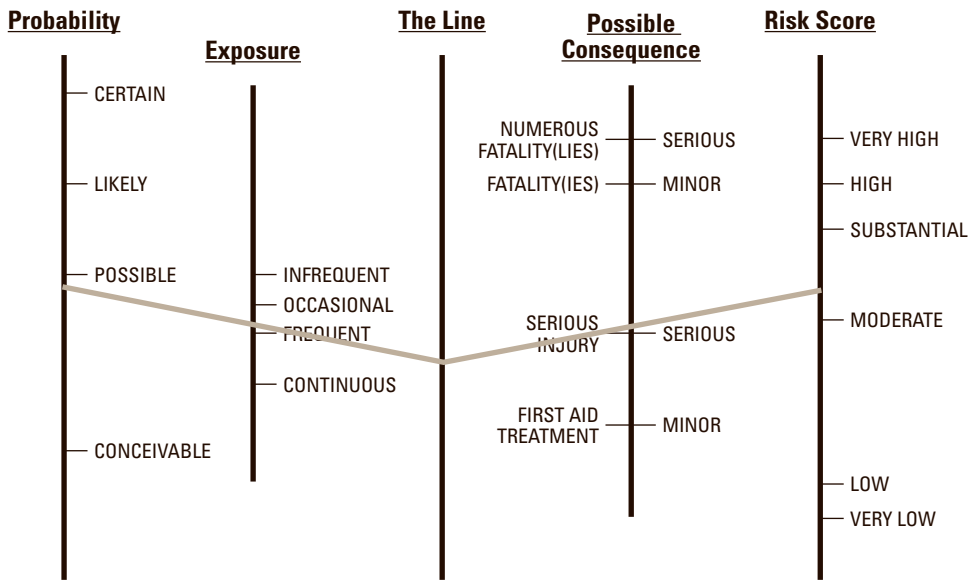
Principles

The nomogram must be specifically designed according to its context, developed for a particular purpose and fit for use. There should be statistical calculation or mathematical rigour when values are assigned to indicate overall risk. Word pictures or descriptors need to be defined for consequence, likelihood, exposure and risk level in order for the information derived by the assessment to be easily communicated, interpreted and applied.

Utility

The nomogram is useful for ranking risks, especially when there are many significant risks requiring treatment and therefore allocation of resources. It is particularly useful in the occupational health and safety context where consideration of exposure rates/ levels is significant when planning risk treatment strategies.

FAULT TREE ANALYSIS

Overview

A fault tree analysis is employed to calculate the probability or expected frequency of occurrence of an undesired event in a technical system. While the initial study of the system will be conducted in a qualitative way (by workshops or group brainstorming) the subsequent analysis is dependent upon accurate quantitative data.

Methodology

After conducting an initial study to identify pertinent risks in a system, a significant undesirable event is chosen as the subject of analysis. Each potential cause of the event, its likelihood and subsequent relationships are identified and evaluated. These contributing events are classified as either an AND or OR event.

Mathematical analysis is then used to arrive at the probability of the undesirable event occurring. This analysis is presented as a fault tree diagram.

Principles

- Two types of gate are used to create logical connections in the tree: the OR and the AND. NOT gates can also be used to convert the entry event into its opposite

- Two states of the basic event (e.g. human error, component failure) exist: TRUE and FALSE

- Probabilities can be applied to all steps throughout the tree to calculate the probability of an undesired event, thus ensuring that the study is quantitative in nature

- A fault tree can also be used as a brainstorming structure to identify possible causes of an unwanted head event without any need for quantification.

Table 14 details the standard symbols used in presenting a fault tree.

TABLE 14   STANDARD SYMBOLS USED IN A FAULT TREE

SYMBOL	NAME	DESCRIPTION
▬	**Rectangle**	Fault event – it is usually the result of the logical combination of other events.
●	**Circle**	Independent primary fault event.
◆	**Diamond**	Fault event not fully developed as to its causes; it is only an assumed primary event.
⌒	**OR Gate**	The union operation of events, i.e. the output event occurs if one or more of the inputs occur.
⌒	**AND Gate**	The intersection operations of events, i.e. the output event occurs if one or more inputs occur.

Explanation of symbols used in Figure 15 shows the preliminary stage of an analysis of the likelihood of severing a finger with a buzz saw. Note that each event would have a probability (or likelihood of occurrence) assigned to it.

FIGURE 15   FAULT TREE ANALYSIS OF LIKELIHOOD OF SEVERING A FINGER WITH A BUZZ SAW
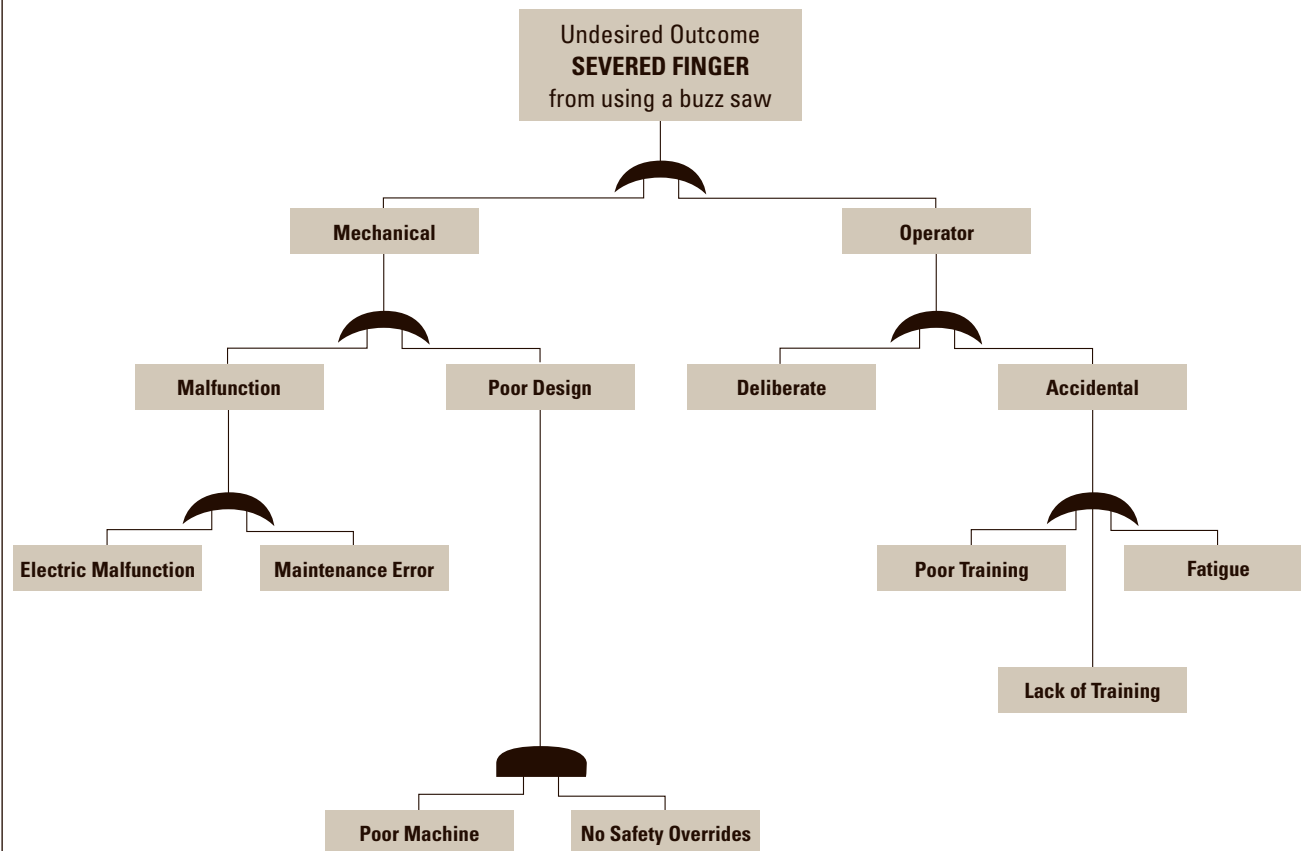
Utility

In the context of daily facility management operations, quantification of a fault tree analysis has limited utility because:

- the study has a very narrow focus

- there is a requirement for quantitative data, which is not always readily accessible or even available

- the study is usually complicated and highly mathematical in nature, and therefore not very practical at the working level.

FAILURE MODE, EFFECTS AND CRITICALITY ANALYSIS

Overview

Failure modes, effects and criticality analysis (FMECA) is a tool used to systematically analyse all contributing component failure modes and identify their resulting effects (and criticality) on a system. Such failures could occur to a system, process, machine or other equipment. Failure, mode, effect analysis (FMEA) and FMECA are similar, except the criticality of a failure mode is used in FMECA as a ranking and prioritisation tool. This analysis provides a detailed understanding of the system, which can then be used in the preparation of design criteria, maintenance, inspection or servicing schedules, training material or other documentation.

Methodology

1   Establish the scope of the study and decide upon the depth of analysis from whole of the system down to subsystems and assemblies or components.

2   Prepare a system description and block diagram and determine:

- all failure modes for each element under scrutiny

- possible causes of failure

- the effects (and criticality) of the failure – consider likelihood or frequency of occurrence

- the means of detecting the failure

- the means of preventing the cause(s) of the failure

- the means of limiting the impact of the failure.

3   Document the results of the analysis, along with conclusions and recommendations, for further action.

Principles

The FMECA is a systematic and detailed, bottom-up process, which determines how components can impact on larger systems as defined in the system description and block diagram. It should be conducted by subject matter experts with detailed technical knowledge of system design and operation.

Utility

This is a sound method when looking at single physical failures such as those that occur with machinery and other equipment, particularly in the design or redesign stage of a project. It is simple to apply and provides an orderly examination of the hazard conditions of the system. The process may also be applied to isolated problem areas within any industry. It is best undertaken by a small team with a cross-section of expertise, as this often results in a more effective risk identification process.

HAZARD AND OPERABILITY STUDY

Overview

A hazard and operability study (HAZOP) is a structured brainstorming approach used to identify potential hazards and operability problems. Although its main use is in the chemical and processing industries it can be applied to situations that can be broadly described as a process.

Methodology

A HAZOP study is normally carried out by a team of people, including the facilitator familiar with the procedure. A diagram of the process or plant under construction is displayed and provides the structure on which the identification process is based. A line through the process is selected and then each step of the process or component of the plant along that line is examined separately. The intention of each step or component is considered, and then possible deviations and how they could occur are identified.

Principles

A HAZOP study is systematic and detailed. Consistency and repeatability are assured through the use of a series of key words (Figure 16). Subject matter experts should also conduct it. It concentrates on determining the consequences of deviations from normal operating conditions. It is an audit of the completed part of a design.

Utility

The HAZOP study is primarily used in assessing deviations from normal operating conditions in the design and development phase of a plant or system. It relies heavily upon subject matter experts and their subjective (qualitative) judgement regarding the likelihood and consequence of undesirable outcomes.

FIGURE 16   SUMMARY OF HAZOP

Key words	Required conditions
No or not	Temperature
More	Flow
Less	Pressure
Reverse of	Quantity
Other than	
Part of	
As well as	
What causes it?	
How would we know?	
How much does it matter?	
What are the consequences?	
What should be done?	

APPENDIX C

RISK REGISTER AND RISK MANAGEMENT PLAN TEMPLATES

Risk Register Template

The following table illustrates the typical content of a risk register.

Function/activity: Hazard and risk register for a transport depot with the following functions: refuelling, servicing, cleaning and administration. Vehicles range in size from cars to buses. A hazard and risk register is kept in each major area of the workplace. An extract from each, being the office, refuelling bay and workshop, is included.	**Date of Risk Review**
Compiled by:	<date>
Reviewed by:	<date>

Ref.	The Risk What Can Happen and How It Can Happen	Consequences of an Event		Level of Risk	Recommended Treatment and Timeframe	Actioned by	Date
		Consequences	Likelihood				
Office							
1	Electrical leads are left lying around on the floor	Physical injury	Possible	Low	All office staff are to be reminded by email about the importance of taping cords to the floor	<name>	<date>
2	Railing on internal staircase is coming away from wall	Physical injury	Possible	Medium	Workshop foreman to effect repairs immediately	<name>	<date>
Refuelling Bay							
1	During refuelling fuel spilled on exposed skin	Skin irritation	Likely	Low–medium	All staff are to be briefed about the spill procedure. Fresh water for washing down skin is to be replenished at end of each shift	<name>	<date>
Workshop							
1	Removal of heavy engine parts without using winch	Manual handling injury	Likely	High	Worksheets are to include manual handling safety requirements – monitoring by supervisor	<name>	<date>
2	Car is scratched or dented during maintenance	Customer outrage and cost of repairs	Possible	Low	Ensure trolleys and equipment are kept outside the yellow lines when not in use and when moving vehicles	<name>	<date>

Risk Management Plan Template

The following table illustrates the typical content of a risk management plan.

Part 1
Brief description of activity: To convert the old church office facility into a daycare centre
Reason for activity/task: The church has received funding by the government to establish a childcare facility due to a critical shortage of places in the local area
Objectives 1   To renovate and refurbish the old church office facility to create an inviting and safe place for the conduct of community-based child care 2   To meet all legislative and regulatory requirements
Significance/importance of activity: High re government funding and impact to community
References (regulations/policy/procedures): State OHS Act and regulations, Building Code of Australia (BCA), state childcare facility licensing requirements
Assumptions/nominal conditions: Capacity of centre: under 2 years of age, maximum of 8 children; 2 to 3 years of age, maximum of 10 children; 3 to 5 years, maximum of 10. Child-to-carer ratio as per regulations
Limitations: Financial

Part 2						
Serial No.	**Risk/Impact on Objective**	**Consequence**	**Likelihood**	**Level of Risk**	**Risk Priority**	**Treatment Options**
1	Design does not meet BCA requirements	Delay and additional expense in plan modification	Possible	Moderate	2	1 Contact expert in this field to draw design 2 Expert to review design prior to submission to council
2	Insufficient budget to meet BCA requirements and desired capacity	Financial hardship of loan and income from capacity does not meet repayments	Possible	High	1	1 Prepare a detailed budget based on a life cycle approach 2 Obtain operational costs from other church-run centres

Risk Management Plan Template [continued]

The following table illustrates the typical content of a risk management plan.

Part 3					
Serial No.	Selected Treatments	Resource Implications	Priority	Referred to	Action by
1	1 Design to be drawn by expert in this field	Additional $2000 and delay in project timeframes by 3 weeks	2	Project manager	<date>
2	1 Detailed budget to be prepared based on a life cycle approach 2 Operational costs to be obtained from other church-run centres	Development of budget by accountant $1200 – delay in project timeframes by 2 weeks	1	Project manager	<date>

Risk Management Plan – Part 3	
Compiled by:	
Risk methodology used: Structured brainstorming with working group, site visit and review of legislative material	
Risk Analysis Tool Used: Risk matrix developed for the context	
Signature: <name>	**Position:** Project manager
RMP reviewed by: <name>	
Signature: <name>	**Position:** <title>
RMP authorised: <yes/no>	**RMP referred:**
RMP modification required: <yes/no>	
RMP further information required: <specifications>	
Signature: <name>	**Position:** <title>

Glossary

9

Accreditation

The certification by a statutory or approved authority of the facilities, capabilities, objectivity, competence and integrity of an organization or individual to provide a specified service and/or required operation.

Amenities

Indoor or outdoor facilities and/or conditions associated with a building, site, or community used for personal comfort, convenience or enjoyment of leisure as distinct from the work of industry or business.

Asset Management

A systematic approach to the procurement, maintenance, operation, rehabilitation and disposal of one or more assets which integrates the utilization of assets and their performance with the business requirements of asset owners or users.

Benchmarking

A tool for continuous improvement that involves quantifying internal performance and then comparing performance against an external group.

Best practice

A comprehensive, integrated and cooperative approach to the continuous improvement of all facets of an organisation's operations. It is a method by which leading edge companies manage their organizations to achieve world class standards of performance.

Churn rate

Internal accommodation re-arrangements undertaken by organizations in response to changing organizational and functional requirements:

1. Primary churn is the result of a planned major strategic change in facility utilization by an organization such as a major relocation to new premises.

2. Secondary churn normally results from the need to respond to deviations in the organisation's business environment or from internal operational constraints such as the need to respond rapidly to new business opportunities or changes to work flows

3. Tertiary churn is an internal phenomenon and relates to the competition for resources between different groups within an organization such as minor re-arrangements undertaken to resolve inequities in facilities utilization

Commercial premises

A building or part of a building used as a business office or for other commercial or business purposes.

Consequence (AS/NZS 4360)

The outcome of an event expressed qualitatively or quantitatively, being a loss, injury, disadvantage, or gain. There may be a range of [possible outcomes associated with an event.

Contingency planning

That part of risk management which aims at ensuring that swift and appropriate action is taken when an undesirable outcome, particularly an emergency situation, arises. It has two broad aspects:

1. development of crisis management plans aimed at maximizing safety for people and minimizing damage and disruption during a crisis;

2. development of business resumption plans, aimed at ensuring business functions are recovered as quickly as possible after a crisis.

Cost (AS/NZS 4360)

of activities, both direct and indirect any negative impact, including money, time, labour, disruption, goodwill, political and intangible loss.

Cost benefit analysis

A method of evaluating projects or investments by comparing the present value or annual value of expected benefits to costs.

Environmental management

The use of procedures that minimize adverse environmental impact during construction and site operation.

Event (AS/NZS 4360)

An incident or situation, which occurs in a particular place during a particular interval of time.

Facility

A complex of buildings, structures, roads and associated equipment, such as a hospital, school, offices, shopping center, or the like, which represents a single management unit for financial, operational, maintenance or other purposes.

Facility management

A business practice that optimizes people, process, assets and other work environment to support the delivery of the organisation's business objectives.

Facility plan

A facility plan is the process of planning an organization's present and future operational directions and translating them into facility requirements in the most effective way.

Fire and life safety

A management plan for the protection and safety of building occupants in the event of fire or other potentially life threatening emergencies.

Hazard (AS/NZS 4360)

A source of potential harm or a situation with a potential to cause loss.

Life cycle

The consideration of all aspects of acquisition, operation and disposal of an assets over its life.

Loss (AS/NZS 4360)

Any negative consequence, financial or otherwise

Maintenance

All actions necessary to retaining an item or asset, in optimal condition. Particular forms are as follows:

Make good

The obligation of a lessee to ensure that premises are returned to their original condition at the end of occupation.

Monitor

To check, supervise, observe critically or measure the progress of an activity, action or system on a regular basis in order to identify change from the performance level required or expected.

Network diagram

Overview diagram that shows the connections between different kinds of installations, telecommunications, power lines, equipment, etc.

Occupational health and safety

The management issues that effect the health and safety of building occupants, such as indoor air quality, ergonomics, fire egress and sick building syndrome.

Occupancy

The manner in which a building or dwelling is occupied by its users or residents.

Organisation (AS/NZS 4360)

A company, firm, enterprise, association, or other legal entity or part thereof, whether incorporated or not, public or private, that has its own function(s) and administration.

Probability (AS/NZS 4360)

The likelihood of a specific event or outcome, measured by the ratio of specific events or outcomes to the total number of possible events or outcomes. Probability is expressed as a number between 0 and 1, with 0 indicating an impossible event or outcome and 1 indicating that an event or outcome is certain.

Procurement process

The activities in bringing a Facility or part thereof into being, including the design.

Project management

The utilization of skills and knowledge in coordinating the organization, planning, scheduling, directing, controlling, monitoring and evaluating of prescribed activities to ensure that the stated objectives of a project, manufactures product, or service, are achieved.

Residual risk (AS/NZS 4360)

The remaining level of risk after risk treatment measures have been taken.

Risk (AS/NZS 4360)

The chance of something happening that will have an impact on objectives. It is measured in terms of consequence and likelihood.

Risk analysis (AS/NZS 4360)

A systematic use of available information to determine the magnitude of the consequences of events and their probabilities to establish the level of risk.

Risk assessment (AS/NZS 4360)

The overall process of risk analysis and risk evaluation.

Risk avoidance (AS/NZS 4360)

An informed decision not to become involved in a risk situation.

Risk control (AS/NZS 4360)

That part of risk management that involves the provision of policies, standards and procedures to eliminate or minimize adverse risks.

Risk evaluation (AS/NZS 4360)

The process used to determine risk management priorities by comparing the level of risk against predetermined standards, target risk levels or other criteria.

Risk financing (AS/NZS 4360)

The methods applied to fund risk treatment and the financial consequences of risk.

Risk identification (AS/NZS 4360)

The process of determining what can happen, where, when, why and how.

Risk management (AS/NZS 4360)

The culture, processes and structures that are directed towards the effective management of potential opportunities and adverse effects.

Risk management process (AS/NZS 4360)

The systematic application or management policies, procedures and practices to the tasks of establishing the context, identifying, analysing, estimating, evaluating, treating, monitoring and communicating risk.

Risk reduction

A selective application of appropriate techniques and management principles to reduce either likelihood of an occurrence or its consequences, or both.

Risk retention (AS/NZS 4360)

Intentionally or unintentionally retaining the responsibility for loss, or financial burden of loss within the organisation.

Risk transfer (AS/NZS 4360)

Shifting the responsibility or burden for loss to another party through legislation, contract, insurance or other means. Risk transfer can also refer to shifting a physical risk or part thereof elsewhere.

Risk treatment (AS/NZS 4360)

Selection and implementation of appropriate options for dealing with risk.

Stakeholders (AS/NZS 4360)

Those people and organisations who may affect, be affected by, or perceive themselves to be affected by, a decision or activity.

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